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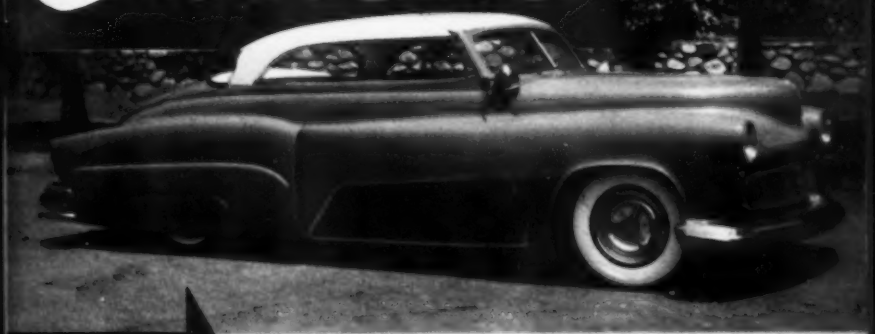

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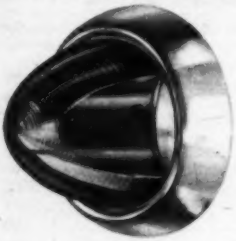

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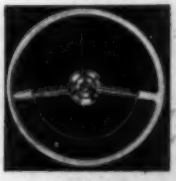

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FEATURES

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the starting line

ONE OF THE biggest kicks we get out of sitting behind this old typewriter is being able to take digs at the Detroit manufacturers, then waiting to see what reaction such voiced opinions bring from you, our readers. One group of our audience that we *don't* hear from—not yet, at least—is the auto makers themselves. Were they, say, to call us down for touting a recommended grille switch, they would be drawing attention to what amounts to their own shortcomings. And to this end we are eternally grateful. However, perhaps the manufacturers *do* take notice of our own customizing suggestions but in a manner less noisy than phone calls or stern letters. As an example of how this might work, bear with us.

Last year we created somewhat of a furor with publication of a restyling article by our well known team of car-manglers, Messrs. Henning & Ritch. The subject which brought about the storm was the then new Continental Mark II. At a time when *all* other auto magazines were loaded with gushy phrases hailing the Mark II as the greatest thing since the Overland Six, R & C hit 'em with *Restyling The Continental.* Quietly ripping the design and construction to shreds with pen and typewriter, the article received wide circulation in the industry via the back door. Intended mostly as a pin to deflate the over-expanded balloon of hot air surrounding the big Ford, H & R's efforts pointed out the basic deficiency of the new model in that it was not a convertible.

It was with more than just considerable satisfaction, then, that H, R and the R & C staff viewed pre-release photos of the now-available Mark II ragtop. And this model is almost a dead-ringer for the version whipped up in this magazine fourteen months ago! So satisfied are we to see such an honored profession as car styling come under the spell of a magazine like this, that we won't even ask when the continental kit's going to go.

Entries for our Design Contest poured in hot and heavy right up until the deadline—and, it turned out, no single category had many more entrants than the others. The contestants seem fairly equally divided. So, at this writing, we are buried under a virtual mountain of drawings, sketches and colored renderings of some of the weirdest yet nicest looking bunch of imaginative creations you've ever laid eyes on. And next month's issue will be bringing everyone what they've long waited for—the Design Contest Results.

sm ●

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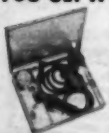

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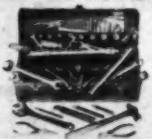

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LETTERS TO THE EDITORS

HIGH COSTS

One of the biggest headaches in building a rod here in the East is the costs charged by shops for work done. Have talked with enthusiasts at Bonneville and at the National Drags who had similar work to mine performed but they reported the costs as being almost half of what I paid. Obviously, we rodders are being taken advantage of. Is there any way to stop such a practice?

Bill Harlow New York City, N.Y.

● *Best way we can think of is to do as much work yourself as you can, farming out only such things as chrome plating, or other operations that require specialized equipment. Realizing that you probably already know this, would suggest patronizing only those shops whose prices are in line. The high-chargers will eventually go begging if enough enthusiasts bypass their shops.*

THE ROADSTER — Still With Us

I get your magazine regularly and put most of your information to good use — but I see a need for more fibreglass articles, especially how it might be applied for building *The* Roadster.

I think that if enough of us got together we might get a *Part VII* for building *The* machine — the plastic way. How about it, rodders, are you with me?

Lesley Graham El Sobrante, Calif.

MODEL CAR CONTEST

I have been interested in rods and customs for a long time, but have never owned a car of my own. Your Model Car Contest came at the perfect time to put into practice what I've learned from perusing your issues.

Leo Rauer — St. Paul, Minnesota

● *Leo's letter was accompanied by a model car marked for entry in the nation-wide contest being staged by ROD & CUSTOM and Revell, Incorporated. And at this writing the entrys are beginning to pour in. If you've missed out on what this is all about, suggest you avail yourself of either a November or December issue. To those currently working on entries, don't forget the December 31st deadline. The winning cars of the ten top-ranking finishers will be shown in the up-coming April issue.*

CUSTOMIZING PRICES

Wish you would list the prices for the work performed on the cars you feature. This way your readers could get an idea of the charges involved in a particular customizing job.

B. F. Williams — Omaha, Nebraska

● *We include such costs whenever they are made available to us by the car owners, but often these owners don't wish to have such costs made public. Too, there is such a wide variance in customizing costs throughout the country, that they would be of little value. But, as we stated, we'll include them whenever possible.*

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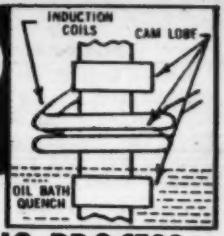

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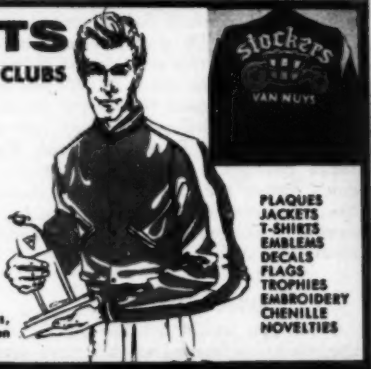

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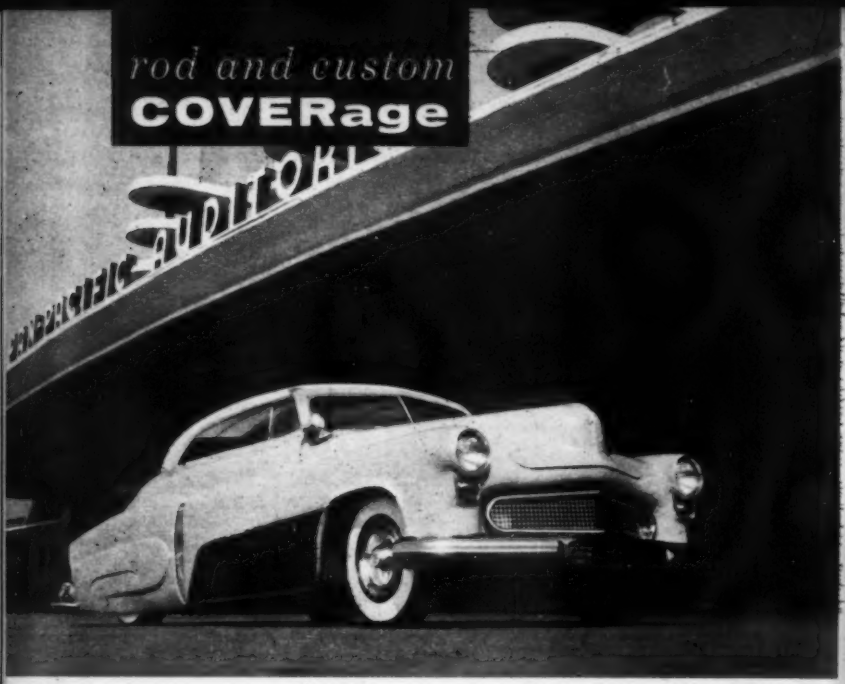
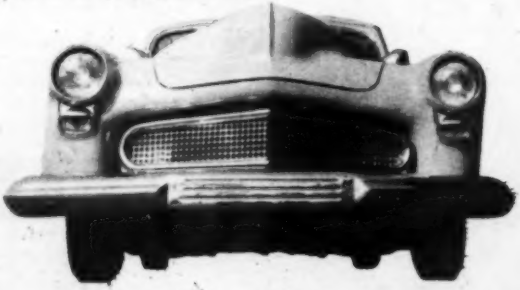


rod and custom COVERage

UNTIL THE advent of the first true post-war cars of 1949, the '41 Ford held top priority with the customizers. Their introduction marked a big leap for Ford, since the cars were acclaimed the largest in the small car line. The preceding '40's were almost boxey by comparison – narrower and shorter yet taller. The styling of the '40 was difficult to alter without alterations of major proportions, but the '41 needed only comparatively minor rework to make it an eye-stopper and to this end it lended itself admirably.

Thousands of '41's were nosed, decked and lowered. Hundreds were rehashed from end to end, including new grilles, taillights and even top chopping. But it is questionable if any received as much hammer and torch work as this three-toned, hardtop convertible '41 cabriolet. The '41 may yet again come into its own as the current popularity of the older '40 dwindles. If this is the case, consider, on the following pages, the 1941 Ford of Frank Monteleon.



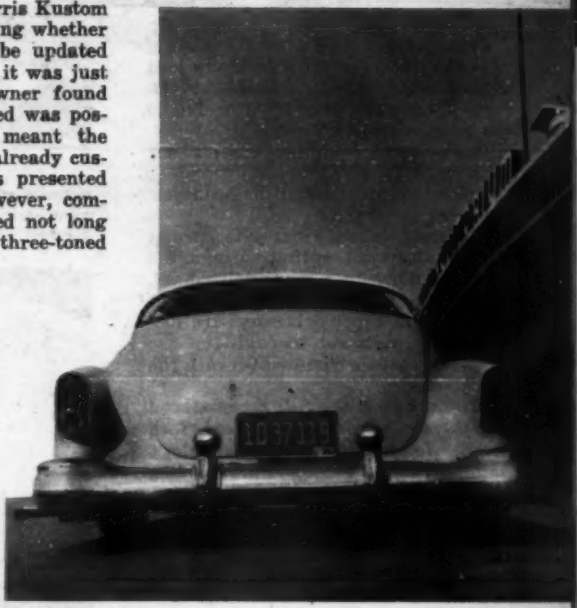
Front end reveals none of original '41 Ford's characteristics. Lights, fenders are Oldsmobile; bumper is Mercury. The grille was made by bending tubing to shape and chroming, securing sheet of chrome mesh metal to back side to give "deep" look. Ford hood carries Cad contours.

It took seven years to build . . .

The ULTIMATE '41

Seven years ago the Barris Kustom Shop received a caller asking whether his '41 convertible could be updated to modern standards. And it was just seven years before the owner found out that the job he outlined was possible. Long time lapses meant the recustomizing of an area already customized, since newer cars presented newer styling trends. However, completion was finally attained not long ago with the spraying of a three-toned lacquer job (see cover).

Cover and black and white photos by Geo. Barris



Rear end, like front, hides '41's true identity; hints at Oldsmobile styling. Ford lid was retained, though the corners were rounded, but balance of components were taken from Olds.

The aft ends of the Olds rear fenders were recontoured to fit the '54 DeSoto lenses, and large radius fillets were worked into the four corners of the original '41 deck lid. Protecting the tail end from damage is the bumper from a '51 Oldsmobile.

The Barris Brothers electrified everything in sight – doors, deck lid and hood. In place of the conventional folding top – long ago relegated to the ashcan – is (now get this) the turret top of a '38 Ford 2-door! It is apparent that much work was needed to get the turret to fit, and now it is easily removable when convertible-weather reigns. Quick-release latches secure the top when the California sunshine comes down in drops.

All four fenders were discarded, a few years back, and those from a '50 Oldsmobile substituted. Of course, the rounded lines of the '50 Olds fenders didn't match up with the slabsidedness of the '41 doors, so the fender lines had to be extended by fitting rolled sheet metal – this, in itself, doing more toward hiding the '41's identity than any other operation.

The grille floats within the shell from a '50 Mercury and is suspended in cushioned mounts to eliminate rattles and squeaks. Little remains of the '41 hood except the center portion, the outer edges being swiped from a later model Cadillac. Front bumper is a '51 Merc, reworked, of course.

(continued)

THE ULTIMATE '41

continued

Functional scoops mark the leading edges of the rear fenders, ducts lead cooling air to the rear brakes which have a tendency to get warm due to the fully skirted wheels.

Gaylord's decked the cockpit out with pink and white Naugahyde – rolled and pleated – and the headliner has over 500 1-inch pleats.

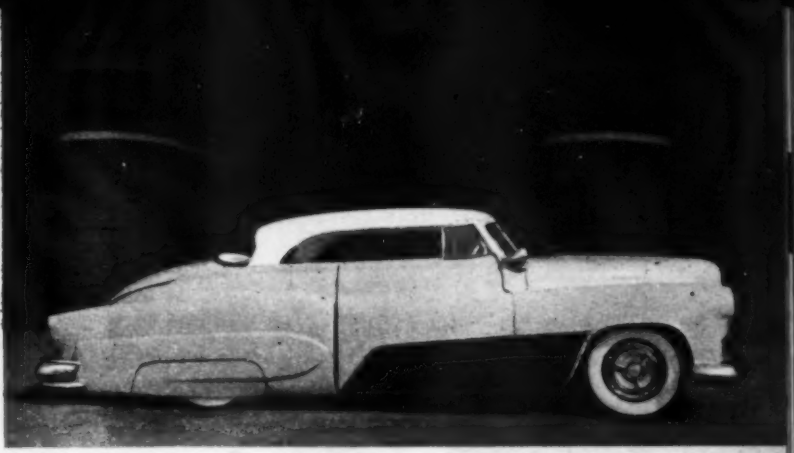
A steeply dagoed front axle, sprung with a dearched spring, brings the fore end down to a respectable level, while a Z-d frame aft takes care of the rear end. Steep driveways are successfully negotiated through the use of swivel casters mounted beneath the rear bumper.

Exhaust from the full race flathead V8 escapes through tailpipes which emerge from the lower fender edges, and turn to run rearward ending slightly below, and just outboard of, the rear bumper.

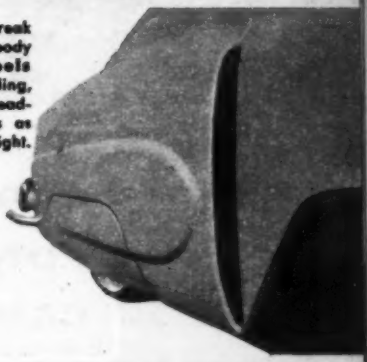
Seven years abuilding, and Frank at last has the car he so long waited for. In addition, his custom marks the epitome of '41 Ford customizing. ●

Exhaust pipe protrudes through fender, is matched by twin on opposite side. Location prevents tip damage when traversing dips.

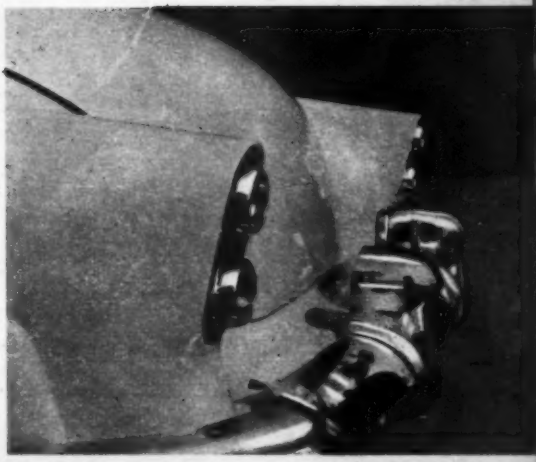
Three-tone paint job beat Detroit to the punch by several years. The Ford's steel top is removable, was built from the turret of a '38 sedan. Car's coloring is shown in the cover.



Chrome strip marks break between contrasting body shades. **Skirted wheels** prevented brake cooling, so scoops were cut in leading edges of fenders as photo shows at the right.



Fenders, front and rear are '49 Olds, meant contouring Ford doors to match body. Identifying parklight below headlamp causes lookers-on to ponder car's origin.

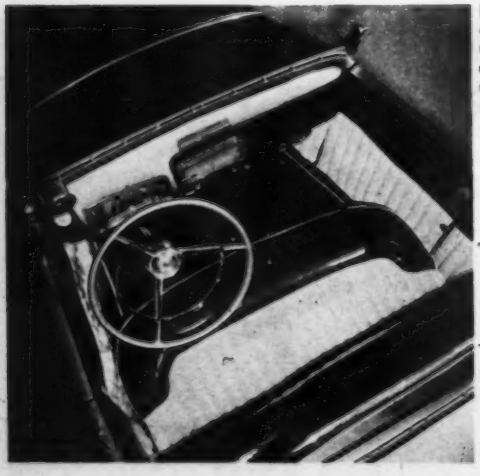


Taillights, housed in chrome bezels, are deeply recessed adding to Ford's "later" look. Work started on this in '50, was finished only recently. Few customs have received such extensive restyling.

Cad powered '31 model A roadster is built for both go and show! Owned by Wes Bevly, of Corpus Christi, Texas, the blue beauty was driven (by builder Ken Atkinson) to a new D class gas roadster record at the 1956 Bonneville National Speed Trials. The new record is 153 mph average for the two way run. Class records are also held by the roadster at the Edinburg and San Antonio, Texas, and Salt Lake City, Utah, drag strips.

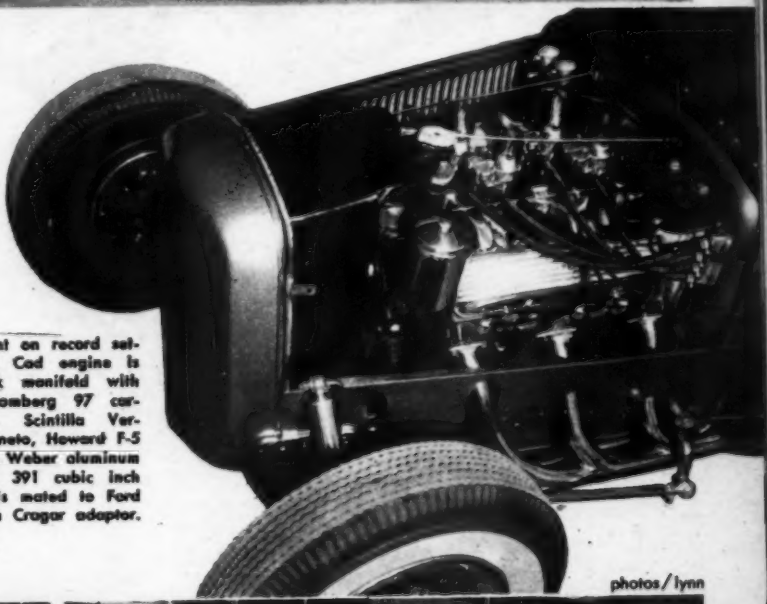
lone star speedster

CAD POWERED CARS



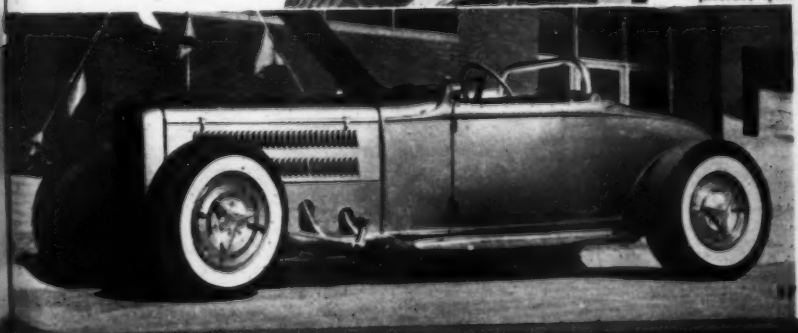
Interior of Bevly's roadster is done in blue and white pleated upholstery to complement outside color of car. A '40 Ford dash is used and a Sun electric tach is mounted at upper left of panel.

The '31 A roadster body is channeled over a model A frame. A '32 Ford shell sets in front of five piece aluminum hood. Chrome outside headers are for competition.



Equipment on record setting '53 Cad engine is Edelbrock manifold with four Stromberg 97 carburetors, Scintilla Vertex magneto, Howard F-5 cam and Weber aluminum flywheel. 391 cubic inch engine is mated to Ford box with Cragar adaptor.

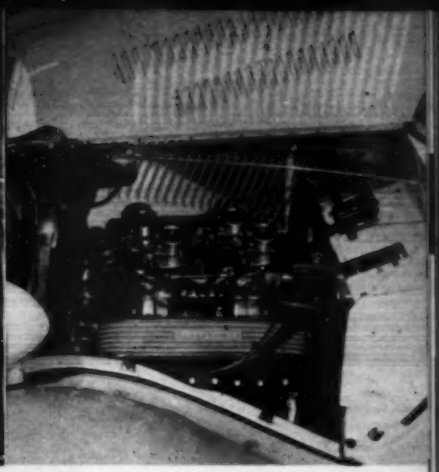
photos / lynn



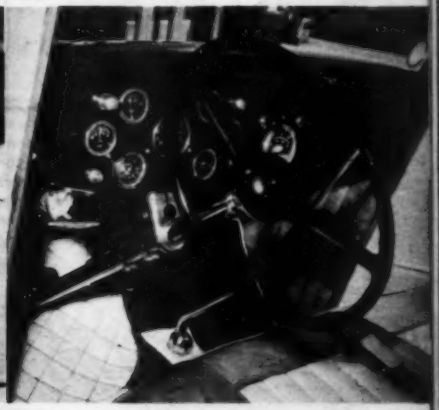
buckeye beaut'

CAD POWERED CARS

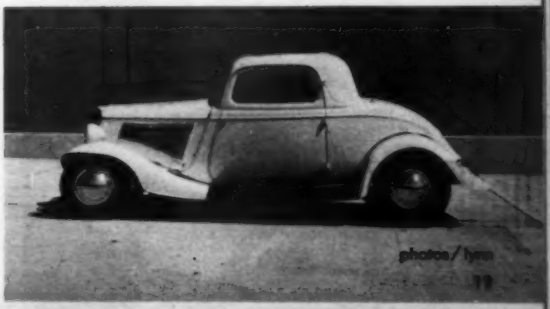
One of Ford's nicest, it's hard to conceive that 414 cubic inches lie beneath the hood of George Montgomery's '34 3-window. A '37 LaSalle gear box connects the hp to draggin' asphalt and the 53 trophies George has at home tell a story of many runs with a top speed of 115.383 mph.



Until hood is raised, few would believe that the '56 engine could be shoe-horned in place, but with the help of much ingenuity and a MacBar adaptor, the ElDorado found a home. Four Strombergs rest atop an Edelbrock manifold. Cam, lifters and pushrods are Howard.



All asphalt passing beneath the Dayton, Ohio, coupe's rubber is not measured in quarters. Interior is outfitted for street usage, upholstered in blue and white vinyl plastic.



5.00 x 15's forward with 7.10's aft help in giving the '34 the California Tilt, though the 3" dropped axle accounts for most of it. Along with the Cadillac engine came paint intended for same make of car: Pastoral Blue.

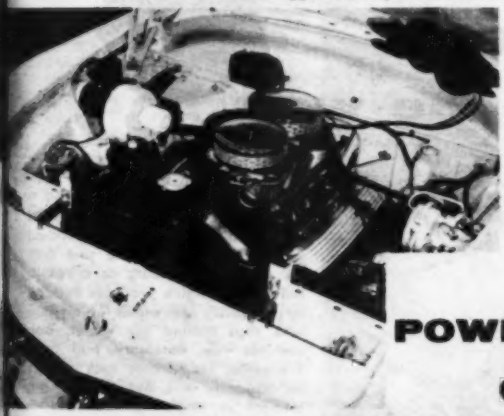
photos / lynn

Ken Atkinson, of Corpus Christi, Texas, needed a Cad-powered car to pull a Cad-powered roadster, so he forthwith dropped an ElDorado engine into his customized '52 Ford. Then into the Cad went a Weber roller cam, McGurk rocker arms and an exhaust system incorporating "lakes", or header, plugs. Transmission is from a Pontiac with a Thunderbird shift setup.

Interior of Atkinson's car is done in black and white naugahyde. Shift lever on floor is Thunderbird unit connected to the Pontiac Hydra-Matic. Instrument panel is stock but is painted black and white to match upholstery. Electric tach is mounted on the upper left hand corner, just out of sight in photo, of panel.

Front end restyling on the Ford reveals frenched Chevy grille and parking light assembly, frenched headlights and rounded corners on the shaved hood, stock bumpers.

The 371-incher fitted, but was a squeeze. Primary purpose of this car is to act as tow machine for the Texas roadster on page 16. Atkinson, Ford's owner, is also responsible for much of the work in the Bonneville record holder — and is draggin' driver par excellence.

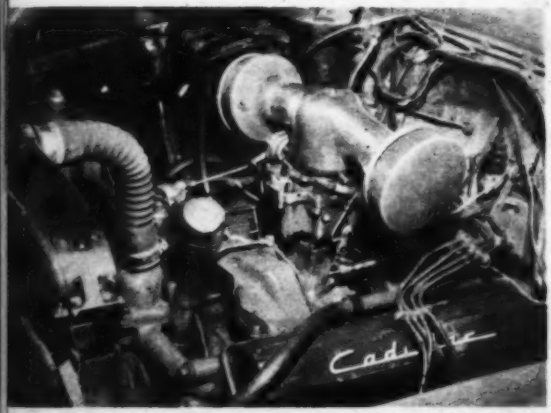


southern comfort

CAD POWERED CARS

photos / lynn

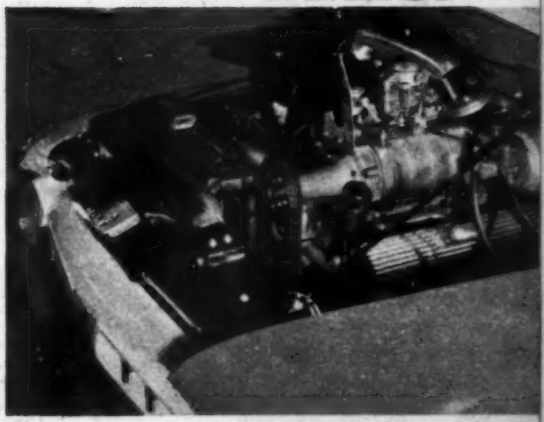
GM all the way



Chevrolet enthusiast Bob Wepfer liked everything about his '49 convertible, except the powerplant — not enough go to suit him. Thus the wedding of one GM product with another took place and Bob not only gets 20 mpg as a result, but the '52 engine produces enough hp to satisfy the whims of anyone who slips behind the wheel. Bob and his wife, Rosemary, hail from Evansville, Ind., where such goings on are quite rare. But, they report, interest in engine conversions is on the upswing as a result of their custom-bodied, custom-engined "Chevolac" which quietly takes to the road as a result of its auto-shifting Hydra-Matic, used to eliminate what otherwise would have amounted to transmission problems.

hasty hauler

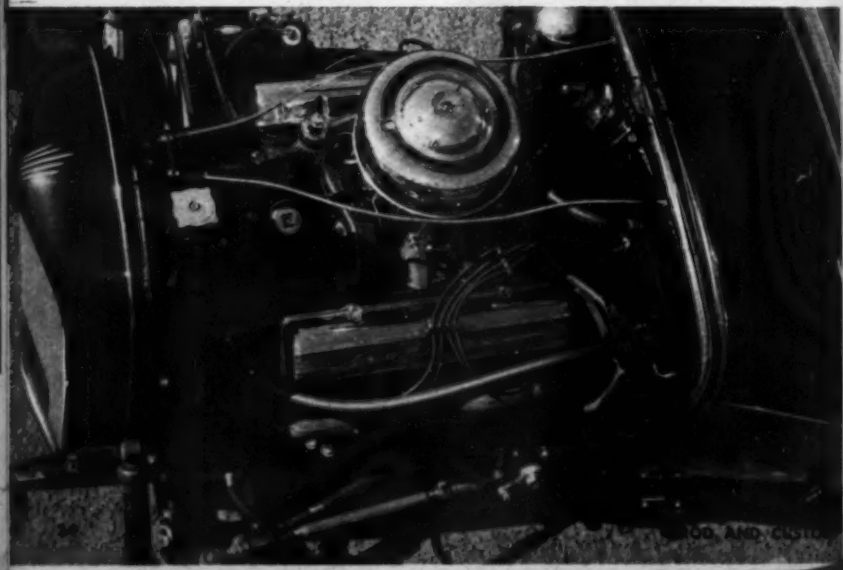
Bill Edwards figured it would take over 400 horses to push his '53 Ford pickup over the 150 mph mark, so he put a GMC 4-71 blower atop a wildly reworked '50 Cad, hung on a HydraMatic unit and stuffed the whole works into his hauler. His estimation of hp needed proved correct as the pickup literally bellowed across the salt to a 151 mph winning run. The chassis needed an extra crossmember to support the HydraMatic which was reworked to operate under greater pressures. Cooled down for daily transportation, Big Bill substitutes two 4-throat carburetors in place of the blower. Exterior alterations give no clue to power available; are limited to dual stacks behind cab and circular Pontiac taillights. All the adapting, reworking and engineering was carried out by the owner.



CAD POWERED CARS

Channeled body, dropped a full 8 inches, has been restored to perfection by Howard Hansel of San Francisco. In sad disrepair when purchased for $75.00, coupe now boasts a 20-coat blue lacquer job, motorcycle headlights and white sided tires to match roof inset. Rear fenders are bobbed '32's reversed to fit over 7.10 x 15's in back.

Cadillac engine, essentially stock, proved tight squeeze in available space. Reworking front crossmember, new engine mounts and radiator arrangement solved the problems.



rapid rambler

Deshboard with array of S-W instruments faces driver who guides Rapid Rambler with '40 Ford wheel. Latter sits atop shortened steering shaft of a '38 Ford.

CAD POWERED CARS

BY GEORGE BURNLEY

Both a low elapsed time and a high top speed at the drags depend upon how you leave the chute. Gearing and driving properly can help a lot, as explained by Roger Huntington, SAE, in . . .

Top Speed vs. Elapsed Time

LAST MONTH WE were talking about the problem of choosing an engine for a drag car, and how this choice was affected by the problem of getting off the line with a vicious friction clutch and fuzzy throttle control system. I can draw you all kinds of beautiful curves on graph paper showing what you should do . . . but try to do it without burning rubber!

All the evidence seems to suggest that a *low-torque* engine has a big advantage coming off the line, other factors equal. Apparently it's a lot easier to feather the clutch and throttle to keep the tires from ringing if the engine hasn't got a big fat reserve of raw torque ready to throw onto the rear axle any second the throttle is cracked 5° too far, or if the clutch is nudged a little too hard. You'd be surprised what a big difference engine torque capacity makes coming off the line. You take a big, hairy Chrysler, bored and stroked to around 400 cu.in.; this may develop over 500 lb.-ft. of torque with full throttle in the range from 2000 to 4000 rpm. On a 1500-lb. dragster how are you going to keep a rein on a combo like that . . . it'll burn rubber at the slightest touch of throttle or clutch. On the other hand, a little 285-cu.in. flathead Ford, with less than 300 lb.-ft. of torque on tap, is a lot easier to handle. With the right gear ratio and a clever boy at the wheel, it can get out of the chute like a shot without a whisper of tortured rubber —and leave the big Chrysler standing there. This is the key to e.t.

Why can't we design for brute horsepower at the top end without getting excessive torque in the mid-speed range? It's tougher than it looks. A wild, super-"gone" cam (preferably a roller) effectively reduces torque below 3500 rpm; but when we're trying to corral our horses *without* a supercharger, by far the most lethal weapon is the cubic inch. Big inches give big wallops in the mid-speed range—pretty much regardless of the cam or anything else. As far as drag cars are concerned, effective torque seems to be just about proportional to cubic inches. Doesn't seem to be any way we can dodge it.

Getting big horsepower with limited cubes is no cinch, either. The usual paths—hot cams, injectors, big valves, nitro, etc.—are effective, but we're fast reaching the end of the line on this stuff. Overhead camshafts, to allow another 1500 rpm or so of "usable" crankshaft speed, look good on paper . . . but they're already turning some of our ohv V-8's over 7000 rpm on the strips, using 300 and 400 lbs. of valve spring tension (valve open)! How much more can we expect from production blocks?

I've always felt that constant-ratio centrifugal superchargers might be a deal for the drag strip. These develop very little pressure at low speed, so medium-speed torque is not greatly affected; but the pressure output shoots up in the higher speed ranges to give a super peak hp. Seems like this would be ideal for the strip. Automotive-type centrifugals, like the McCulloch (or even the new axial-flow Latham), wouldn't be too suitable because of limited air flow capacity. They can't handle pressures and air flow values necessary for outputs in the 400-700 hp range. Converted aircraft superchargers, widely available for low prices or as junk, seem to be the best possibility. Given a decent setup using one of these, we could use

Part II

a small engine of less than 300 cu. in. that would show relatively low torque in the 2000-4000 rpm range (as blower pressure would be only 2-5 lbs.) ... but we could gear the thing for a pressure of, say, 15-20 lbs. in the 6000-7000 rpm range, and get maybe *600 horses!!* Something to think about.

At any rate, the small, low-torque engine is still very much holding its own on the drag strips of America. The flathead Ford-Merc V-8 is the classic example, of course. Many of our hottest top eliminators still use it. It can't hold out indefinitely, of course, as they keep bleeding more and more out of the big overheads. Eventually their superior acceleration over the last half of the course will more than compensate for the less jump off the line. Guess only the centrifugal supercharger can save the small-cube displacement engine!

GEARING

There are lots of theories on gearing for the quarter-mile; you can get an argument on it anytime—and too often your tormentor will add insult to injury by soundly blowing you off using the opposite theory from yours!

Actually, gearing for coming off the line and for acceleration over the last half of the course are two quite distinct problems. I like the idea of choosing the axle ratio to cross the finish line in *top gear*, and then working from there on picking transmission ratios. A transmission will eat up 3 or 4% more power in friction when it's multiplying torque on the indirect gears, and this is more than enough reason to gear to finish in direct drive.

To actually pin-point this ratio I like to figure to cross the finish line at an rpm at least 10% *above* the peak of the hp curve – or if this is beyond the safe engine speed, turn the engine as high as you feel you dare at the finish line. For instance, a super-race 296-cu.in. flathead Merc might peak its hp curve at 4800 rpm. I'd like to twist this one 5300 or maybe 5500 rpm at the finish line. Assuming the car is a hot coupe that will do, say, 110 mph at the finish, and with 7.00/16 slicks, we'd need an axle ratio of about 4.44:1 to do the job. I find that nine out of ten cars—from hot stockers to light dragsters—will do nicely with an axle ratio "higher" than 4.55:1 ... and all but the fastest jobs need something between 4 and 4½:1. This business of gearing heavy sedans 3.78:1 is a killing compromise.

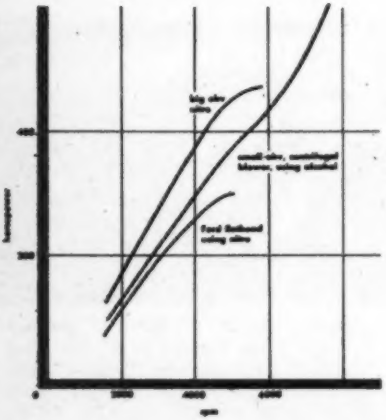
Transmission ratios are another matter. First let me point out that there is no magic in "Zephyr"-type close-ratio gears. The beloved "long wind" in 1st and 2nd gears has no inherent advantage over more conventional wide ratios on the strip. I think

(continued)

ELAPSED TIME VS. TOP SPEED
continued

the true function of a transmission gear choice is to get the overall torque multiplication ratio that will get you out of the chute the quickest—whether you're out for e.t. or top speed, and whether you're an amateur at the game or a real artist. Here's how that works:

In theory, the "optimum" gear ratio (overall) would permit the tires to be held on the verge of breaking loose up to the highest possible speed. This speed will be a function of the horsepower, traction, weight distribution, etc., and is pretty much a matter to be determined by experiment. On the hot coupe we were figuring for earlier, assuming an honest 250 hp at the clutch and gross weight of 2100 lbs., this car couldn't break loose much above 50 mph regardless of the gear ratio (if the tires weren't already spinning). So if we geared to hit the peak of the power curve (4800 rpm) at 50 mph, this would call for a transmission ratio of about 1.95:1, in conjunction with the 4.44:1 rear end. About the closest we could come to this would be 1st gear with 25-tooth Lincolns with a ratio of 2.12:1.



Relationship between power output at low and high end with various types of power plants; high torque at medium speed makes it plenty tough to get a quick start out of the starting gate.

This is the theory behind gearing for minimum e.t.—that is, have enough gear available so you can stay on the verge of breaking loose up to the highest possible speed. This overall starting ratio will run generally anywhere from 7:1 to maybe 12:1 on cars of various weight and hp.

Or there's another way to look at it. A lot of fellows realize that they don't have the skill—or maybe their car doesn't have the stability, chassis setup, and easy clutch action—to stay anywhere near the breaking-loose point coming off the line. When they try to use the "optimum" gear they just sit there and burn, while some Joe with the "wrong" ratio is long gone. These fellows would be farther ahead if they used less gear, sacrificed some *potential* forward thrust, and geared so they could come off the line at full throttle without excessive spin. This gearing theory would never produce the best e.t. a given car is capable of... but certainly the *average* time of a large number of runs with a non-expert driver up would show up better.

With the above coupe I figure it would take an overall ratio not above 7:1 to assure no excessive wheelspin with rough clutch action and virtually full throttle coming off the line. This would call for a transmission ratio around 1.58:1. Closest we could come would be 2nd gear in either the Cad-LaSalle-Olds-Buick box (1.53:1) or the 28-tooth Ford gears (1.61:1). I know of a fellow with a moderately-modified '55 Chevy sedan who is having real good luck with this gearing theory. He's turning 95 mph top speed and e.t.'s in the high 14's with 265 cu.in. He uses the 3.70:1 rear end with '56 Corvette gears in the trans, using the 2.2:1 1st gear coming off the line and crossing the finish in 2nd. On paper this gear combo looks ridiculous for the quarter mile... but it lets him get out of the chute every time without breaking loose, and it's apparently paying off.

(continued on page 62)

hopping up the Ford OHV's

Part II

BY LES RITCHEY

Warren Bowes is giving a set of ECZ-B Ford heads the first step toward better breathing. A 70° piloted reamer driven by a ½" electric drill-motor is used to enlarge the valve pocket, the area of the port immediately beneath the valve seat. This operation is done to enlarge the major valve seat diameter to 1.900" in order to accommodate the '56 Lincoln intake valves that are to be installed. Although some enthusiasts believe a port tapering from a small diameter to a large one is not beneficial, gases traveling through a port of this type are cooled through the loss of velocity which results. This cooling increases their relative density, which is more important to engine output than sheer volume of intake gases inducted on each complete cycle.

KEEPING IN mind the previous procedures we have tried to outline in doing the right kind of head and valve job, these same procedures will stand for the installation of big valves as explained in this article.

Of the three heads described previously, the ECZ-B head lends itself the best for installing big valves because of the distance from the center of the guide hole to the dip in front of the spark plug hole. This, regardless of the head used, should be checked into before any work is done, although in my experience I have not found a head which would not take at least 1 15/16" intake and 1⅝" exhaust valves. The size of the valve you finally decide to use depends on the cubic inch displacement and what you expect to end up with in *go* equipment.

In the accompanying pictures you will see the B heads which will end up on R & C's blown engine. In this particular case, we feel that the largest diameter valves which can be used safely, should be used. The intake valve is from a '56 Lincoln and was originally of 2" diameter, turned down on the valve machine to 1.900", giving us enough safety margin from the plug recess. The exhaust valve, also from a '56 Lincoln, is 1⅝" across the head and is put in with its stock outside diameter.

First the guide holes should be cleaned and checked for proper size and clearance. When cutting for oversized valves it is obvious what could happen if the reamer guide shaft was too loose in the guide. The actual over-

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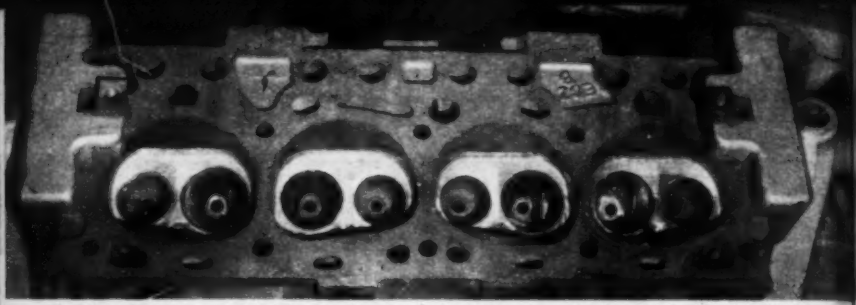

The two chambers at the right hand end of this photo show the increased valve pocket area obtained by the reaming process told in the text over the unaltered ports in the left chambers.

HOPPING UP THE FORD OHV'S

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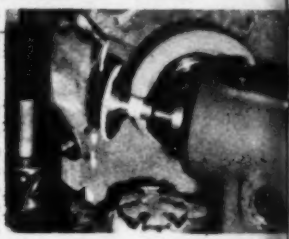


Getting more cubic inches of go into your engine without boring and stroking can be accomplished by intelligent valve modifications, such as shown above. Here, the initial rough-cut of the precision undercutting operation is being made with a stone ground to a ¼" radius, on the edge facing the camera. The valve is being fed into the stone at an angle of 15 degrees.

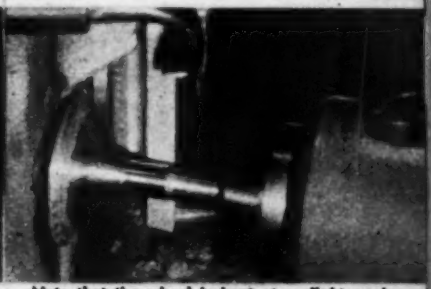
sizing is done as shown in the accompanying photos, using a 70° piloted reamer. This tool can be purchased from the Cedar Rapids Engineering Co., makers of Kwik Way equipment. The actual hole should be reamed out to 1/16" less than the size of the valve used, giving you enough leeway to true and undercut the finished seat and match it perfectly with the finished seat area of the valve. The reamer, which will fit most valve seat grinder valve pins, should be used with a very slow-turning ½" drill motor of around 350 rpm's. It can also be turned by hand with good results, using a universal joint and ⅜" speed handle. Either process will do a fine job. The latter is more on the manual labor side, but don't let it scare you — it's not so bad. The exact place to stop the reaming process should be closely watched. As we mentioned in the previous article, if the valve seat has to be trued and re-cut farther into the head, it does nothing but increase the length of the valve stem from the spring seat. As a result, the valve springs will have to be shimmed to proper spring height. This should be very closely watched when final assembly takes place.

Now comes the number one problem when larger than 1 15/16" intake valves are used. The Lincoln valves are too long on stems to use in their stock form. Approximately 3/32" has to be ground off the stem end. This disrupts the stem hardening process and Stellite must be welded on, then a light true cut taken. The half-moon keeper grooves will have to be re-cut in the exact same place as on your stock Ford valves. The valves taken out can be used as a reference for groove position and stem length. Most local machine shops are equipped to do this at a nominal fee and any specialized welding shop can take care of the Stellite tipping.

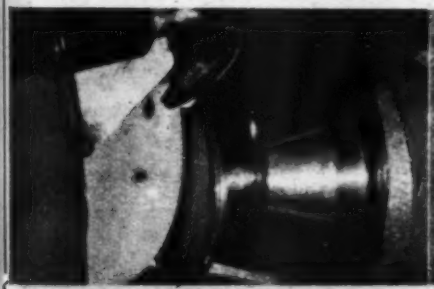
The valves we have just mentioned can go into the head in their stock form with the exception of the modifications mentioned, but in keeping with maximum performance we must realize that the mass weight of the valves enters into the picture quite extensively at higher rpm's. The valves shown have been tulipped and lightened. This was all done on a shop valve machine and although extremely time consuming and exacting, it can be done by any individual who really wants to do it. The valve is chucked

No micrometer is needed to visualize the difference in valve-head area made by the installation of the big 1.900" Lincoln valve, right, when compared to the smaller 1.730" Ford valve at the left.

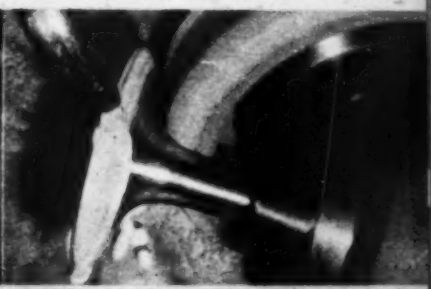
The port-restricting bulge on the valve stem is being ground down to the same diameter.



Note that the wheel is kept at a slight angle to the stem to prevent making large scratches.



Tulipping of the valve head is done with the stone set at an angle of 100 degrees.



Important finishing operation is done with fine-grained stone set at an angle of 15 degrees.

in the valve machine using a rough cut stone with a quarter-inch radius on it. Set the valve angle at approximately 100° and slowly let the stone cut into the valve head. Be careful to take no more off the head of the valve than a light cut across its complete diameter. Following this, the valve angle can then be set to 15° and the underside of the valve head and stem can be rough cut to clean it up. To finish off both surfaces, another stone of finish grit should be used with the same quarter-inch radius. The valves are then chucked in an electric drill or polish motor and crocus cloth is used for a bright polish job. When done, this can cut down ¼ of the total valve weight, accomplishing much toward high rpm and top speed performance.

(continued)

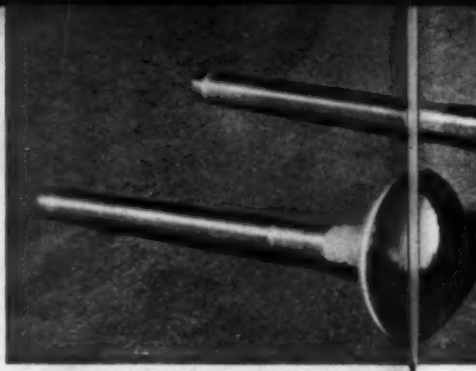
HOPPING UP THE FORD OHV'S

continued

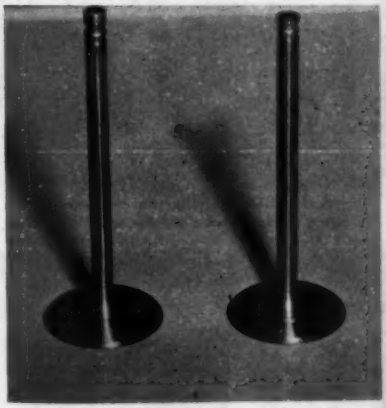
The procedure we have just been through for installing oversized valves is very necessary at this time for use of anything bigger than $1\frac{15}{16}$" intake valves. However, since the introduction of the '57 Ford and its component parts, Ford has made it much easier to achieve better breathing. A complete set of $1\frac{15}{16}$" intake valves (part #B7A-6507A) can be purchased at your Ford parts department. With the same reamer setup as previously described, these valves can be installed in your Ford heads with the rich reward of increased breathing capacity for much less gold than is involved in the Lincoln setup. By the same token, Ford also makes a standard tulipped intake valve of $1\frac{3}{4}$" size (part #B6T-6507A). This is used in '56 trucks and is much lighter than standard passenger car valves. This is a very easy way to get a much lighter mass with the least amount of specialized work.

It should be plain to see what performance increases can be had on your Ford ohv engine by nothing but head rework and the proper selection of heads for what you expect from your engine. These operations, done correctly and diligently, will result in a car that will pay off with performance and extreme pride in a job well done.

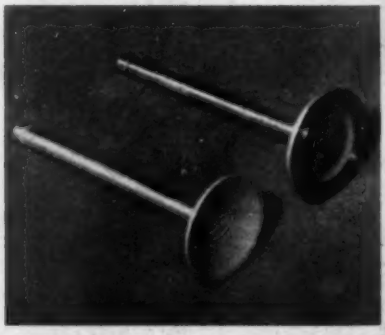
Next month, we'll discuss the proper selection of a cam shaft, stroking, boring and balancing. ●



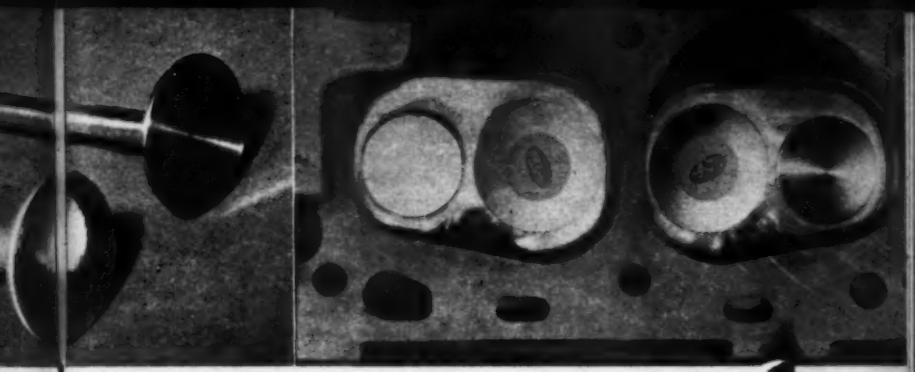
Stock '56 Lincoln $1\frac{5}{8}$" exhaust valve, front; undercut and tulipped version of same in rear.



After valves and seats have been faced, a dial gauge should show not over .001" error.

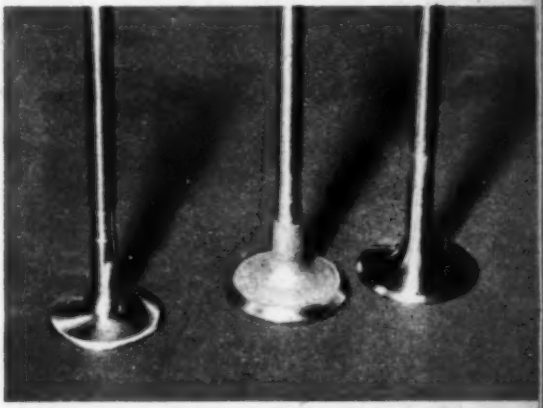


Ford truck valve has already been tulipped (front); is a better choice for the $1\frac{3}{4}$" seats.



(photo, above right) Left valve, left chamber, is stock 1½" Ford exhaust; right valve, right chamber, is 1⅝" diameter '56 Lincoln exhaust valve modified by undercutting and tulipping.

(photo, left) At left is standard length Lincoln intake, undercut, tulipped, with a new retainer groove cut to accommodate different installed length of Ford springs. Valve on right is the same, except for being shortened the necessary 3/32" for use with Ford heads to give proper rocker angle. Next step is to weld end of stem with Stellite.



(photo, right) Left to Right: modified Ford exhaust valve; stock '56 Lincoln exhaust valve; and undercut and tulipped '56 Lincoln exhaust valve. Note that neither of the Lincoln valves shown here have yet been shortened the necessary amount.

Valve spring assembled length must be 1.780"; here depth gouge is being used to check this out. Washer-like objects, left, are standard shims used to make up spring-height deficiencies. Available thicknesses are 1/32", 1/16", and 1/8". The thicker shims won't be necessary unless the valves are sunk deeper into the head than would be good practice, or the springs weren't the correct type. Spring tension for these engines 64-79 ft. lbs. with the valve closed; 145-177 ft. lbs. with the valve open. Valve open spring height is 1.390"; all springs used in an engine that's expected to "put out" must measure up to specs.

PRACTICAL RESTYLING

WHEN PHOTOS of the new Plymouth first crossed our littered desks, it was unanimously agreed there here was the best looking '57 of them all. "Now they're catching on to what we've been preaching out here in the smog belt", seemed to be the consensus of opinion and it was felt that much progress has been made toward adopting the lines favored by the younger (rock 'n roll) set.

Take the hood, for instance. No bulbous, drawn out or otherwise obscene pedestrian-stabbing ornament to clutter up the smooth nose here. No imitation rocket ship swooping off the prow. Not even a medallion to ruin a contour. Of course this means less body work for men who earn a comfortable living nosing hoods, but the buggy whip socket manufacturers had to re-tool, too. Unfortunately the company felt it necessary to label the product rather prominently in metallic type across the bow, but this is easily disposed of.

In actuality, the car resembles a stocker which has been the recipient of a bit of tasteful restyling at the hands of one of our better body shops—lowered a trifle, de-gunked slightly, sharpened up a bit and turned loose to be widely copied.

Don't misunderstand, now, H & R are not baffled by this trickery on the part of Detroit. No, indeed! There remains much missionary work to be done and we can carry on our conversion efforts with the subject at hand quite readily.

So, if you have chosen a new Plymouth for your transportation, perhaps we can persuade you to do something about a few of the things that *haven't* been corrected.

Take that grille, for instance, The use of transverse bars certainly gives the car width. In fact, the bow looks like the USS Forrestal. Such a sleek car otherwise, last year's fifth best seller deserves a grille which will compliment the slick shape of the side view. Leave us chop up a '55 Chevy grille and use the parts in forming a new one for this bus.

Rockin' Plymouth. Here the '57 version has been restyled by using grille parts from a '55 Chevy, splitting front bumper and removing center section. Area around lights has been panelled and aluminum skirts have been added. The '57 Plymouth offers restylists an excellent base with which to work.

BY HENNING & RITCH

Making The '57 Plymouth Rock

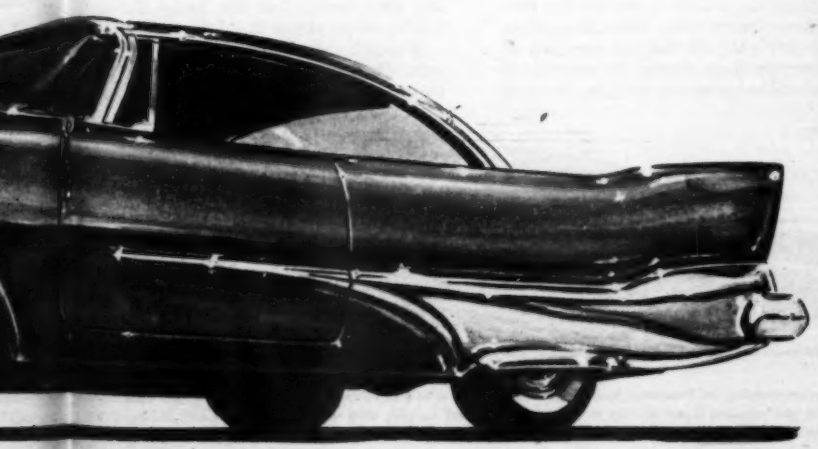
The bottom portion of the present front end is vaguely reminiscent of GM's LaSalle and is not at all in keeping with the top section. Suppose we chop the center part out of the bumper and end up with a split one. This will permit a deep, narrow grille which can be scrounged out of the Chevrolet bit mentioned earlier. The accompanying sketch will give you an idea of how this would look, especially if the section around the light on each side is panelled in. This one operation could do more to transform the Plymouth into a showpiece than any other.

Speaking of lights, we are on the verge of a trend (so we're told) to the quad-headlight era. Plymouth has made its move pretty obvious by surrounding the two sets of bulbs with a metallic extrusion. To change the look of the junior Chrysler, why not bury them? Get rid of the frames and flush the lenses. Not much work, and consequently, not a big body shop bill.

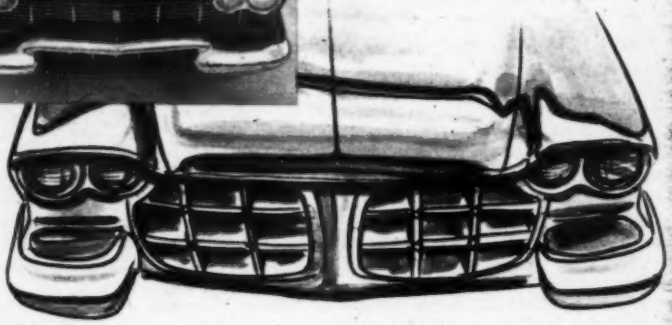
To do the right thing, invest in a set of speedlights. These come in various sizes and different candlepower ratings. One type is the same as used in aircraft landing light units and rates about 5 times as bright as your headlights. Size: 5¾" in diameter and 3½" deep. Fits neatly in place of the parking light and offers additional lighting for night driving. Of course, in most states you can have only one set of lights burning at a time, so be sure they are hooked up accordingly.

Prices? Oh yes, about $25.00 a pair.

(continued)



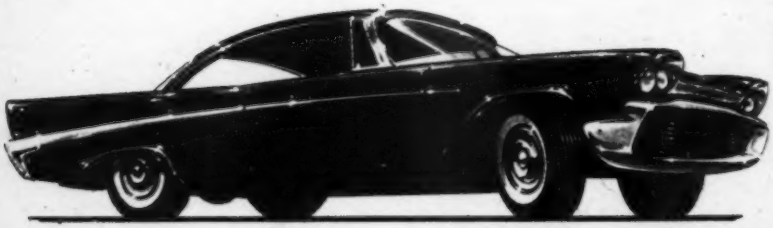
An alternate grille suggestion involves use of Imperial grille parts. Not much body work would be needed; greatest change is in the bumper which must be split and wrapped around. Section below the face bar has been panelled in with metal. Speedlights, for safer nighttime driving, would be substituted.



Moving rearward, or aft, there may be those in our vast audience who feel that the seal-like sides of the Plymouth just don't look right without some decoration in chrome or bright metal. So be it, then, and let's add an aluminum fender skirt, accenting it with a spear of the same metal running forward across the door and swooping up in back to match the fender line. Gaudy, yes, but distinctive. To do it right, the bottom sections of the rear fenders should be hammered out into a bulge at the bottom. We will get rid of the present appendage which resides there and purchase a Lincoln parking light for each side. Imbedded there it will become our back-up light.

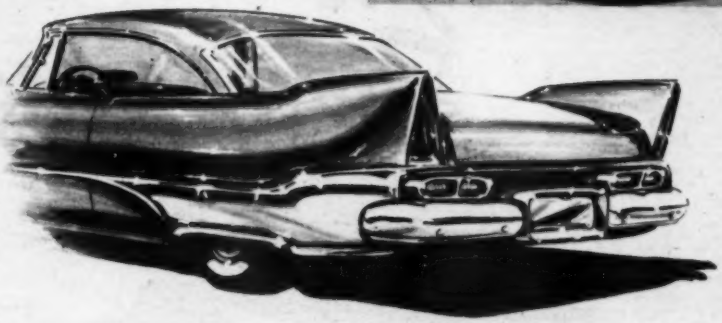
As for the taillights—let's dechrome the fin and really sink those red lenses in. Take the chrome strip off the top of the fender, too. And, this goes for the counterpart on the front fender, while we're about it.

Enough editorializing; it's a nice car. With a few touches here and there...



Not recommended as Practical Restyling, this is what a radically reworked Plymouth might look like. This far-out version is as low as a Corvette. Reduced height, and weight, would result in improved performance and handling. One-piece bumper/grille is H & R suggestion to stylists at Chrysler Corp.

Suggested restyling for Plymouth's tail is concerned with cleaning up rear bumper, relocating gas fill door and working over the taillights. Backup light housings are Lincoln park lights. Taillights are recessed further in.



Such as doorhandles. Yes, we know, they're put there so you can pull open the heavy door; but why not spring load it like a trunk lid? Then a tiny button, such as has been installed on many a Kalifornia Kustom, can perform the service and we can be rid of a protrusion that's as unsightly as a hood ornament. So be it: the solenoid latch is prescribed.

In addition to removing the ornaments from the deck we can bring the rear bumper's contours into relationship with the revised front one by splitting it, taking out the center section and putting in a lighted license plate frame.

For the far-out fan, to make the Plymouth *really* rock, take a quick squint at the section job we have envisioned.

No, it's not presented as Practical Restyling, but here's what the Plymouth would look like if this recipe were followed:

With the advent of fuel injection, and the consequently lower possible profile, a sectioned (or *more* sectioned) automobile could be built; say about the height of a Corvette. It would mean a re-designed dash, flatter seating arrangement, much as we find in the so-called "personal" cars where the driver's and passenger's legs stick almost straight out. By necessity the driveshaft tunnel would be about as high as the driver's legs, but the lowered center of gravity and reduced weight would compensate for some inconveniences.

If sectioned, the entire car would have to be lowered a bit to preserve proportion and stiffer springs are mandatory to compensate for the reduced amount of wheel travel due to lower fender-tops.

The combination front bumper-grille portrayed in this version would be a smart economy move, in our humble opinion, reducing manufacturing costs of these parts somewhat.

The decorative spear is a continuation of the rear bumper and repeats the top line in effect. Notice that the bumper tail fins have given way to a gentler slope in this design which makes a point of smooth flowing lines.

Maybe we have something like this to look forward to from the Chrysler people, maybe not. At any rate, they're moving in a direction we like to see 'em go. Who knows, maybe someday they'll produce a genuine custom and put us all out of business.

Anyone want a space ship restyled? ●

THE NUMBER ONE CUSTOMIZING GIMMICK...

Taillight Swapping

'54 LINCOLN LIGHTS FOR THE '51 CHEVROLET.

DESPITE THE countless taillight alterations which have turned up through the magic of switching components from one car to another, and the conclusive articles in magazines revealing both how and why a specific swap was made, it is still this portion of a car's hind end which evoke the most interest from customizers. Headlights for many years had a place in the spotlight, but now interest has gone 'round back on the present-day custom.

Consider the many makes of cars produced since 1949 (year of the great change-over). Now consider the many combinations of taillight-body switches possible. Astronomical? You bet. Luckily, we'll never run out of combinations, but there are limiting factors which will severely narrow the field for one interested in changing this aspect of his car's styling. And it is this styling which is the number one limiting factor. It just wouldn't do to, say, hang the giant lights from a late Cadillac on a '49 Plymouth. They'd look as out of place as on a carpet sweeper. Hence the number dwindles, yet we still wind up with plenty of possibilities. Though R & C has given you numerous taillight change-over articles, each requires different planning and varying procedures. Here, then, is yet another switcheroo — '54 Lincoln lights on a '51 Chevy.

Photos by Winfield

Initial step in job of this nature is removal of interfering parts, as: bumper, taillights, etc. After shape has been decided, cardboard trimmed to shape denotes pattern for metal.

Shape of hood is transferred to body metal, metal hand-bent to conform to fender line. Note chalked line on fender for alignment, removal of the paint necessary for clean welding.

Further alignment checks were made by chalk-marking; fitting and refitting new panel before any attempt was made to weld it in place. Indent below will be taken care of later.

The fender extension, or taillight shade, is tackwelded in position. C-clamps retain metal in place, prevent slipping of piece as often happens when welder works unassisted.

Welding is conducive to warpage, so hammer and dolly (against under side) are used to bring metal back to shape. Following this, solid bead of weld is run completely around seam.

Rear end of protrusion is to have rolled appearance, so a length of welding rod is clamped in place, welded. When two sides are done, leading will complete the effect.

The new taillight opening with the "rolled edge" completely welded on. All welded seams will now be cleaned of scale and grit, tinned prior to the all-important step of leading.

Properly tinned, area can be leaded as shown. Secret is to heat stick to semi-fluid state, work it around with wooden paddle being sure to add more than is necessary. Then...

...grinder and file will take high spots down to proper plane. Low spots can be tapped up from beneath, high sections taken down with file as is shown here. Once completed, the...

...leaded portions are thoroughly cleaned of acids and wax before application of primer. Thoroughness now can make or break the job. Turning from the light, we see how two...

...Merc bumpers are split with torch. Cut is 3" over from center, then longer of the pieces united for wider-than-stock bumper. Weld is then carefully ground down, bumper plated.

Result is a Chevy which no longer resembles a Chevy from hind-side view. Note how panel was welded to fender, molded in so that top line of bumper matches taillight contour.

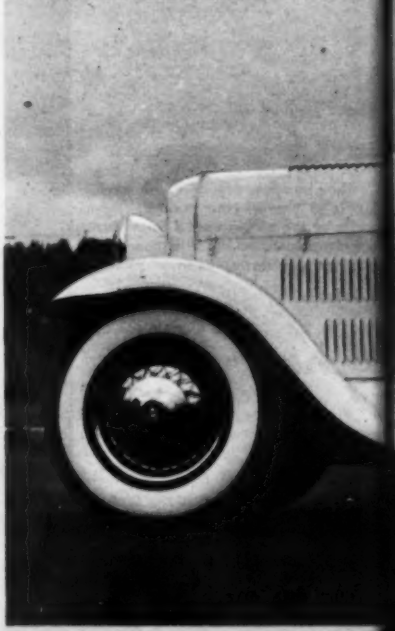
Triple

WHEN GEORGE McINTYRE of Gladstone, Oregon, decided to build a practical rod he selected the straightforward lines of the '29 Ford pickup as the basis for the car. The reasoning back of the selection was twofold. First, of his many rods none had been of the ultimate in classics, the "A" series. Secondly, the car was to be used as a carry-all around his horse stable, and in competition as well as a fun car for weekends on the road. A little pickup based on the early "A" would fill the bill.

Starting with a set of '29 rails George added a '38 Ford front axle complete with brakes, hubs, and spindles. For rear suspension he used a shortened "A" rear axle housing. The spring mounts were adapted to '40 Ford back plates so that the '29 spring could be used. Tube shocks replaced the original Houdailles. A center tube crossmember was then located for the rear mounts of a V-8 mill. No controls were mounted on the chassis. For steering, a '38 Ford box was laid on its side in a special bracket. This allowed the steering arm to clear the fenders when the body was mounted.

While George was collecting the necessary body parts for the truck he had Bud Parham of Portland build the mill for him. Bud bored a '46 Merc block to 3 5/16" and made the usual port and full relieve job. Stock exhaust valves were reinstalled, but the intake valve seats were recut to take oversize valves. A Clay Smith 284.2 stick was then installed. Before dropping in the quarter stroker crank the whole reciprocating assembly was given a full balance job by "Blackie" Blackburn. Blackie also supplied the ignition system — a battery outfit that he designed for street and track. Bolt-on goodies selected were an Edelbrock triple intake manifold, Edelbrock 9:1 heads and homemade headers. The mill was equipped with a 19 pound flywheel and an Auburn clutch before being dropped in the chassis.

With the chassis and engine ready to go the assembly of the body was begun. A '29 roadster bucket was bolted to the rails. The firewall was cut out during this operation and a curved steel plate was welded in. The plate gave a sanitary appearance and left plenty of room for engine work and removal. As soon as the main body position was permanently established George built up the mounting rails for the pickup box. He wanted the box to be functional so it was necessary to mount it three inches higher than the usual rod installation. To avoid excessive overhang the bed was also shortened 13 inches. Sheet metal was used to form the rear body panels. The same stock was employed below the box to cover the rails and bed.



Threat HAULER

"...the straightforward lines of the '29 pickup".

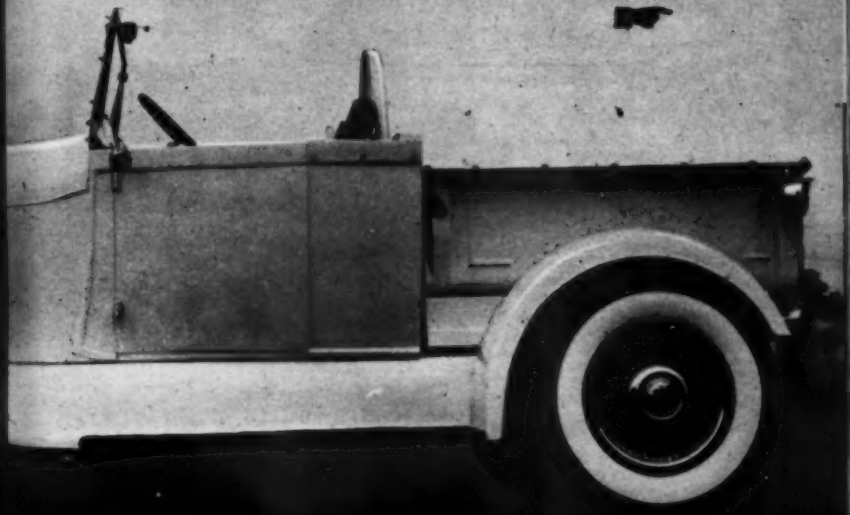
Two aluminum aircraft seats were mounted on a tube frame and the frame in turn mounted inside the body on the main rails. Bolts were used so it would be an easy operation to remove the seats quickly in the event of a major tear down. It was found, after this, that the steering column was too long. This was shortened 11 inches. All controls were then mounted and hooked up. This included a swing type braking system with the master cylinder mounted on the firewall, and a '49 Ford pull-on parking brake.

Johnny Laidlaw of the Gladstone Auto Trim Service made up a set of snap-on seat cushions for the aircraft buckets. The material used was black Naugahyde over foam rubber. Johnny also made a serviceable carpet from durable composition material.

The almost completed car was then moved to a body shop where the windshield was mounted, the cowl filled, a '32 grille installed and the fenders and running boards modified and put in place. The car was then shot white.

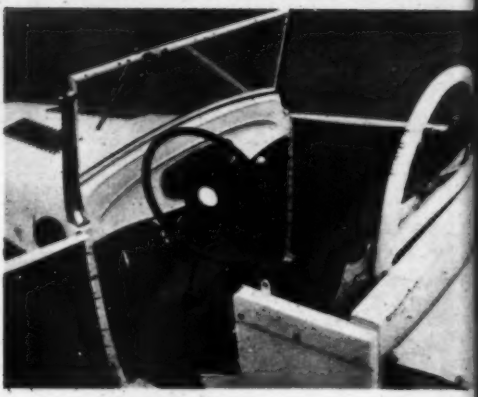
When ready for the road the 2670 pound roadster pickup really fulfilled George's expectations. Comes a weekend and the rig is ready to haul a saddle and a bale of hay, choose off at the drags, or, if the weather is right, head off for a day's drive in the Pacific coast hills. ●

MORE



BY PETER SUKALAC

Time-honored favorites join again here in the form of Stewart-Warner instrument panel, set into an otherwise blank dash, and the steering wheel from a '40 Ford. Under-dash parking brake handle is '49 Ford. Steering gear is from a '38, reduced in length by 11".

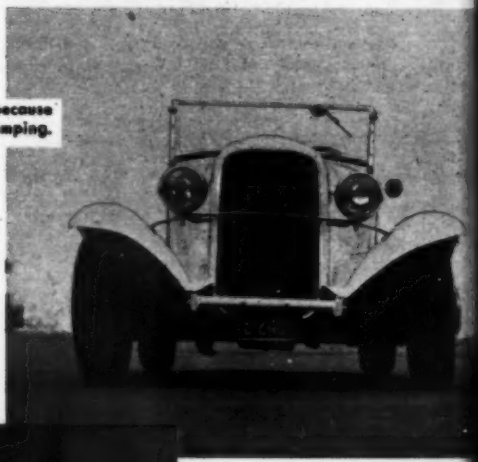


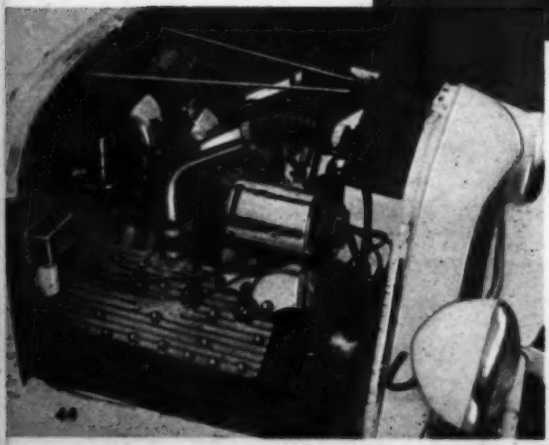
Triple Threat

HAULER

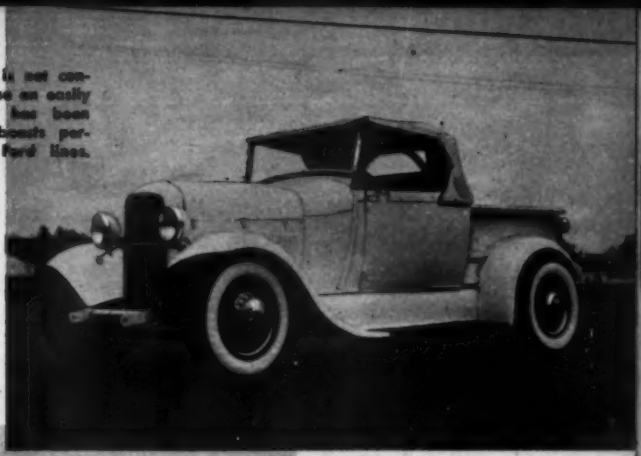
continued

High ground clearance was kept because the pickup is used occasionally for camping.

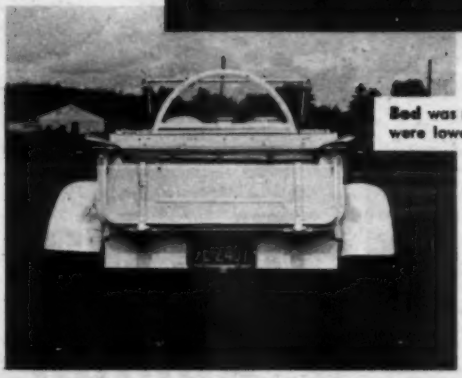




286-inch Merc is fully balanced has been stuffed full of ForgeTru pistons, genuine Clay Smith cam and carries Edelbrock heads and an igniter by Blackburn. Beneath fuel block on firewall may be seen brake master cylinder for the overhead pedal mounted within.

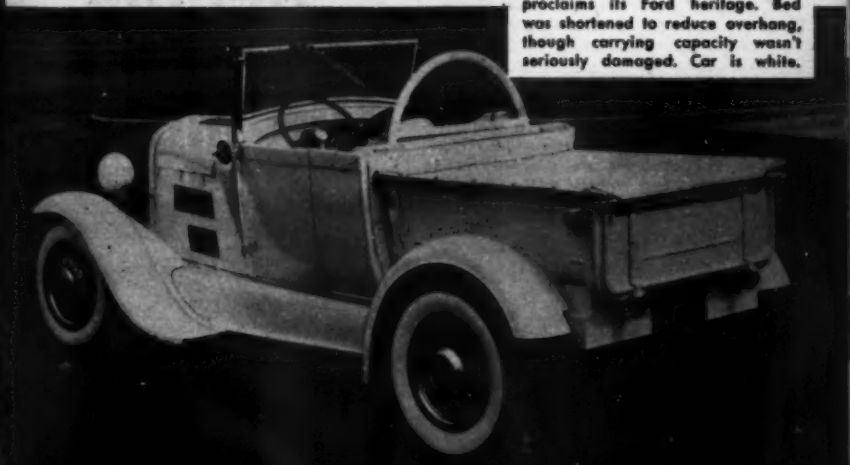


The rainy northwest is not conducive to roadster-ing, so an easily removable canvas top has been added. The 29A still boasts perhaps the neatest of Ford lines.



Bed was raised 3", shortened 13". Fenders aft were lowered 3", then bobbed a like amount.

High rollbar is perhaps not the most graceful part of the car, but is undeniably the safest. Exhausts peek through panel beneath bed, after end of which still loudly proclaims its Ford heritage. Bed was shortened to reduce overhang, though carrying capacity wasn't seriously damaged. Car is white.



Chrysler hardtop undergoes transformation from a stock kit model to pint-size "300" race car. This model was ordered by a customer who pilots a full size counterpart.

The Man *Behind* the Models

Ford convertible, a simulated track model, receives detailed painting before shipment to ragtop driver who ordered a miniature duplicate of his racing convertible. Note rollbar. Not apparent are stiffened frame, safety belts and other safety features.

EVER SINCE the November issue hit the newsstands, we have literally been besieged with requests for more information on Customizing in Miniature. Readers of that issue will recall our lengthy spread on the restyling of pint-sized, plastic automobiles available for about a dollar at all hobby and model shops; a conclusive report on a hobby that is spreading like wildfire among auto aspirants—young and old alike.

Most of the revamped models shown in the article were the work of Budd Anderson who, it turns out, has been at the game of restyling model cars for nearly fifteen years. During the daytime, Budd may be found hard at work in the model shop of Revell, Inc., (one of the largest makers of detailed, plastic automobiles) but at night he turns to his own shop which occupys a 2-car garage. Products of his handiwork line shelves covering every available foot of wall space. The illustrations shown here disclose but a small percentage of his cars.

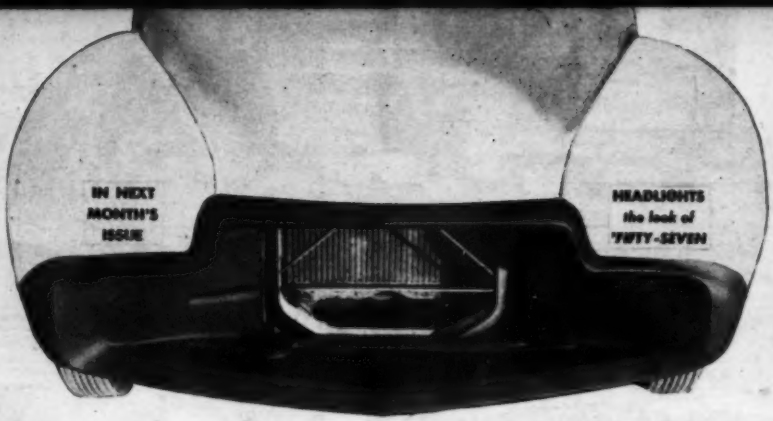
Budd is a real model shop-hound and snaps up a new make or model car as soon as it goes on sale. Never settling for just one, Budd always snatches at least two of each car thereby having a stock model to compare against the customized version when he has it completed.

Turning this interest from purely a hobby to a spare-time business, Budd is currently building customs for car owners who desire a mantelpiece model of the restyled car in their garages. And, here's how he goes about it:

A customer sends Budd photos of his already-customized car. Budd digs up a stock model counterpart, rehashes it to duplicate the reworked version, paints it the color the customer wants. Or; a customizer may come to Budd with ideas on how to restyle a specific auto. Budd follows directions—in miniature—with knife and saw, turning over the finished product to the would-be builder who then follows suit on the real thing if changes wrought are satisfactory.

So, in answer to the many queries we have received asking if such a service is available, there you are. If *you* would like a beautiful model of your own rod or custom, drop Budd a line at 9625 La Tijera Blvd., Los Angeles 45, Calif., for further information—making certain you include the make and model of the car you wish. And within a few days Budd will tell you in detail what he requires before work can commence.

With model cars in mind, don't forget the nation-wide Model Car Contest being staged by ROD & CUSTOM in conjunction with Revell, Incorporated. For full details, check either the November or December issues of R & C. And do it *now* before time runs out. ●



Designed and performed exclusively for ROD & CUSTOM by Barris Kustoms of Lynwood, California.

BARRIS MEETS *The Truck*

Part II

Grille shell completion.

Photos by Geo. Barris

PERUSERS OF last month's issue were treated to an at-long-last sight of the R & C Chevy pickup truck as it went under the capable torch of Barris Kustoms. Nose bobbing was due and the installment delved into the ins and outs of fitting scooped pans to the front end.

It is quite obvious that this is a more or less singular project, in that not all of you (we trust) want to duplicate our frontal treatments to your own truck (if you have one). But, let us hasten to add, if you study the methods and general procedures as outlined, then you could apply the gained knowledge to the reworking of *any* front end – be it car, truck or wagon. To this end we say hop to it, for chances are we'll never run exactly the front end styling you want in this magazine, simply because of the infinite number of designs available, what with all the makes and models of cars, grille bars and so forth. So, a little ingenuity, plus assistance from articles of this specialized type, should see you through any transformation project you may attempt.

But, enough of all this. So lengthy is the shell-building procedure for our hauler that it can only be produced in a two-part series. Kicking it off last month was the trimming and fitting of the scoop-like pans (actually two 1956 Studebaker lower grille panels), so now it's time to finish off the metal work and bring the new opening up to the primered stage. ●

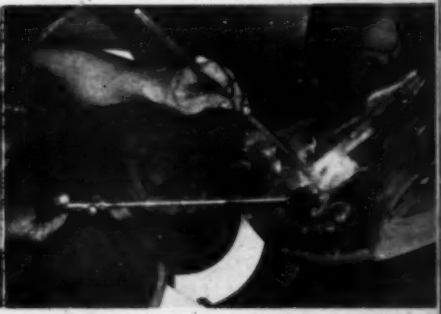
Addition of new grille shell involves hood re-contouring on forward lip which formerly protruded out to reach stock upper grille bar. Here it is being torched off after removal of latch plate directly beneath it.

New hood edge was formed by adding short length of sheet metal, flanged under for stiffening. Joint was welded solidly and treated as seams surrounding grille shell. Here it is being filed before final sanding.

Since welding requires heat, and heat buckles metal, welded seams must be hammered flat. Here a dolly is held behind the joint and the body hammer tapped rapidly back and forth along the line of all the welds in the area.

Protruding shell is to flair into the fender beneath headlight, so a lead fillet must be molded. First, though, welded seams have to be carefully cleaned of rust, scale and burned paint for proper adherence of lead.

Lead won't stick to bare metal, so tinning compound is applied by heating steel wool and dipping into compound. Steel wool is next brushed over seams after metal has been heated, until shiny surface appears.



Lead goes on right after tinning. Here the stick is shown being heated until it becomes semi-fluid. Practice playing torch back and forth from metal to lead will make the operation become automatic, make leading easier.

Once lead adheres to metal, it must be re-heated and worked into approximate contour with wooden paddle. Special paddles must be dipped in beeswax to prevent lead sticking to wooden surface. Once contour is reached . . .

. . . grinder is used to smooth it out. But be careful! Lead is soft and grinder may cut too deep — use it sparingly and only to approximate shape and contours wanted. Finality can be achieved afterwards by . . .

. . . cross-filing. File will reveal where high and low spots are. Light hammering will even them out, additional filing will complete desired contouring. Tools, materials used here are all available at parts and accessory stores.

Coarse sandpaper on rubber "block" finishes leaded areas prior to painting. Note seam beneath headlight — this must await leading until headlight modification has been completed. Changes here will be up next month.

A must see for your movie list.

Hot Rod Handicap

Bobby Ellis moves street roadster in for a close-up. No small-scale production, Hot Rod Handicap required shooting crew of 40 people. Film reveals many Calif top-notchers.

FRESH AMMUNITION in the battle for public support of hot rodding is supplied by a new half-hour color movie, "The Hot Rod Handicap."

Sponsored by Richfield Oil Corporation, its purpose is to educate the public on the value of organized hot rodding in developing driver safety, personal initiative and technical ingenuity among America's youth.

The story portrays a father who first opposes the hot rodding activities of his daughter's boy friend, only to become a hot rod enthusiast at the end. It was produced by Hal Roach Studios, with the cooperation of the National Hot Rod Association.

Top Hollywood talent featured in the film includes Carolyn Craig, who has appeared on a number of TV shows and takes an important part in the new motion picture, "Giant"; Bobby Ellis, who has played a prominent role in "Meet Corliss Archer" and other TV shows; Walter Coy, veteran TV actor who has an important part in the motion picture, "The Searchers"; and Dave O'Brien, a familiar actor on TV who has starred in Pete Smith shorts.

In putting the story together, writer John McGreevey worked with the NHRA, Los Angeles Sheriff's Department, Los Angeles and Pomona Police Departments, various drag strip operators, Los Angeles Board of Education, three different high schools, and approximately 250 individual hot rodders.

The film is now being shown as a short feature in movie theaters throughout California, and will also be exhibited in Arizona, Nevada, Oregon, Washington and Idaho. Prints in 16 mm. size will soon be available to hot rod clubs or any other interested groups in the six Western states. Application forms for use of the film will be sent to all hot rod clubs in these states as soon as possible. ●

The camera car, heavily loaded, charges out of chute with roadster close behind during shooting. Believe it or not, special camera car really storms even with crew aboard.

Out of the 48

SOUTH CAROLINA

BOB RAMAGE would not have torn into his '48 Dodge if it had not come out second best in a traffic hassle, but the mangled metal offered opportunities unlimited and Bob made the most of it. For instance, it was no more work to install a '50 Mercury grille shell than it would have been to replace the crumpled grille with stock parts. Same deal aft, it proved easier to fill the deck than replace all the ornaments and bric-a-brac which had adorned the stock lid.

Into the aforementioned Merc grille opening went part of a '51 Ford grille, and between the lower fender line and the front bumper was planted a Chevy gravel deflector.

Rear springs were de-arched and small blocks inserted to drop the tail to a respectable level, while chopped coils did a similar job up front.

A '52 Dodge pickup engine motivates the coupe as the owner perches on seats upholstered in Naugahyde. ●

SOUTH DAKOTA

EVER WONDER what becomes of some of the more outstanding customs? Here's one that graced automotive magazine pages even before the advent of Rod & Custom – and one of the first radical '49 Chevys to emerge from Barris Customs in Lynwood, California.

The Carson-topped convert has changed hands several times since its completion, and now its home is Rapid City where it provides transportation for Bob Lawrenburg – and is a real crowd-stopper in that custom-less section of the 48.

In addition to the chopped top, the rear of the frame has been C-d to provide a smooth ride despite the 8-inch lowering job, the grille area completely reworked with two bars filling the void. Frenched lights, handleless doors and a smooth trunk lid provide unbroken expanses of lacquered steel, and Olds taillights perch neatly on the end of tubular fender extensions. Rear bumper is also Oldsmobile. ●

NORTH CAROLINA

A '50 MERCURY, $400.00, outstanding features from cars he admired and a few months' time went into Stanley Bennett's building of what is now called the Scorpe.

Though the car bears Oregon license plates, Stan took what time he could from his job as paratrooper while stationed at Ft. Bragg, North Carolina to incorporate two '53 Chevy grilles and spinners from a '51 Ford into a new frontal design. Small scoops over the frenched headlights are reminiscent of the '55 Pontiac, but enhance the Merc even more than they do the parent car.

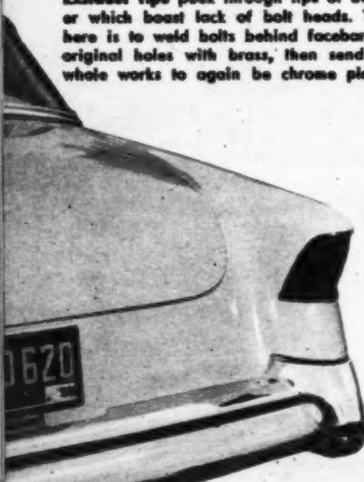
Taillights are composites of '51 Lincoln and '54 Oldsmobile. The most effective, and expensive, addition to the Merc's lines is the long, flared fender skirts with a scoop effect worked into their leading edges.

Black lacquer covers the Scorpe as proof of the metalwork beneath. ●

Photos by Pesznecker

Off-color beading between panels of top add to the 2-tone touch of the *Naugahyde*-covered seats, doorpanels and kick panels.

Exhaust tips peek through tips of bumper which boast lack of bolt heads. Trick here is to weld bolts behind facebar, fill original holes with brass, then send the whole works to again be chrome plated.



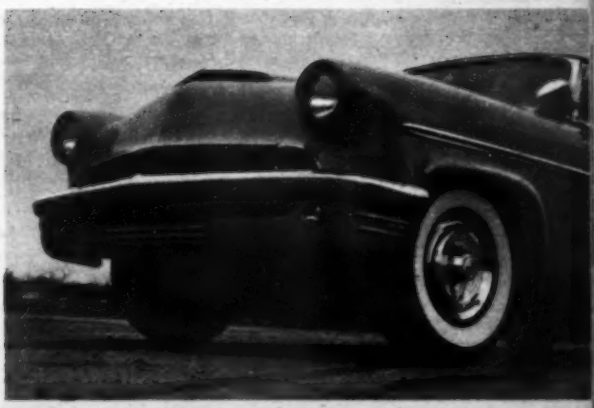
The latest approach in customizing seems to be to not make an attempt at radically modifying a car, but to make the most of few alterations — from an appearance standpoint. Days past have seen the body-man spending weeks at chopping a top, months at sectioning. Yet a few inches with the torch and paddle — in the right places — can result in just as eye-catching a creation as can [illegible] hundred of [illegible] taking [illegible] performing [illegible] — but [illegible].

LITTLE WORK MERC

IT IS SELDOM that our manufacturers produce a car practically begging to be customized, rare indeed when the same make car offers such an attribute in two successive complete body change-overs. But, Mercury did it; once with the '49-'51 models, again with those built for '52 through '54.

To illustrate what we mean, take a peek at Don Chaves's '53 hardtop boasting of few body alterations but all of which tend to emphasize many of the basic body's finer points. Length, for instance, became seemingly greater by removing exterior door handles, tunneling the headlights and lengthening the rear fenders so they could receive Lincoln taillights. Width was "increased" by boltless bumpers, and painting the once-chromed lower front bumper segment. All work was performed by Bailon Custom Shop in San Leandro, California. ●

Seven louvers have been punched into each side of hood. Though admittedly functional, they also lend an interesting styling note to the custom.



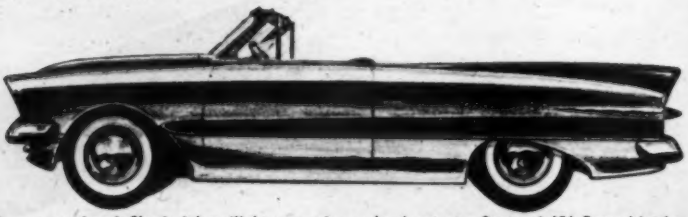
Steel mesh fills void behind unadorned upper bumper bar. Lower facebar was pointed to add to car's apparent width. Note filled hood; restyled headlights.

Photos by Spence

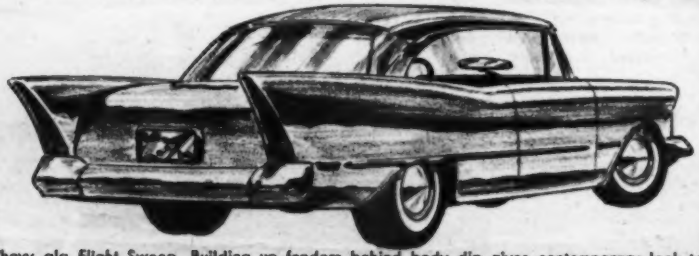
off the sketchpad

STARTING 'FIFTY-SEVEN off with a multitude of changes, we include *this* page devoted to some random thoughts about what makes good design in transportation and some doodling to present ways of achieving it for *your* car. Lots of efforts have gone into molding massive components from some contemporary model onto older cars, only to discover on completion that the design change wrought has completely aborted the basic good lines of the original parts and overall car.

Perhaps a little discussion of how to add visual length or width to your car will be useful—or what some new trim can do for another year or model. Good design is usually the result of planning rather than haphazard bolting-on or leading-in. With that in mind, let's take it *off the sketchpad* before we put it *on the car*. You don't have to go to a body shop to see how the thing will look—you can merely pick up a pencil and do-it-your-own self. ●



'50 Ford goes modern! Shaded headlights, teardrop wheel cutouts, fins and '56 Fury sidetrim add length and motion. Raising stock bumpers on lowered car gives protection and diminishes apparent height. Studebaker airscoops front and rear give finished appearance. Fury trim covers stock holes.



'56 Chevy ala *Flight Sweep*. Building up fenders behind body dip gives contemporary look to last year's best seller. DeSoto tail lenses adapt easily into tunneled fin back. '57 Olds molding from front fender is reversed on little brother's rear wheel opening. Lowering 2" adds to new look.

Fender-frenching and corner-rounding.

Part VI in the series . . .

Restyling with RESIN

BY BERK ERICKSEN

Photos by Art Whitehead

MANY OF YOU have written requesting photos of a car customized with plastic—apparently the common form of How-to-do-it has left a few questions hanging. Here, then, is a car restyled with glass and resin—a Plymouth belonging to LeRoy French of San Francisco.

We present the Plymouth for it illustrates how *you* can french your fenders and round those door corners—two aspects of customizing we haven't touched on yet in this series. For your reference, we have dealt, thus far, with design, Feb. '56; hooding headlights, March '56; finning fenders, April '56; skirting wheels, May '56; installing air scoops, June '56, and a general report on basic glassing techniques in October '56.

Now, just because this job was done by Joe Bailon, an old pro, don't let it scare you. Stay with us because the materials he used—Tapox and Fiberglas—can be applied successfully by any backyard customizer. And they are readily available by mail from Taylor & Art, Inc., 1710 E. 12th St., Oakland, Calif.

You already know that frenching means filling in joints and seams, getting that one-piece look. So, the job here was to french the rear fenders to the body but could be applied to the seam separating the headlight rims from the fenders, etc.

Joe Bailon first removed the fender welt—the packing in the joint designed to eliminate squeaks. The stuff was ripped out with a screwdriver for the plastic surgery to follow would hide any scars.

Joe used a disc sander to take a couple of swipes along the seams, removing paint and scale from both sides of the joint. When bright, clean metal was laid bare for several inches on both sides of the seam, the area was swabbed off with a hydrocarbon solvent to be sure that no traces of paint, oil or wax remained.

A batch of TAP Plastic Solder was then mixed up—a paste of epoxy resin and metal granules. This was then applied to the groove, it being worked into the joint with a file handle and touched up with a putty knife.

Next, a strip of Fiberglas the length of the fender-body groove was cut, about three inches wide. Now, the Tapox (commercial epoxy resin) was mixed with its catalyst—one part catalyst to five parts of resin. And it's best we remind you right here to use *epoxy* resin because other types will not adhere to metal permanently.

The catalyst was poured *slowly* into the resin and the mixture was stirred *thoroughly* and *slowly*. Why? You avoid air bubbles that way.

The strip of glass cloth was then dunked into the mixture. Joe wore rubber gloves at this point because epoxy gives some guys skin irritation and he was playing it safe. The glass was thoroughly impregnated with the plastic and then laid in place, right over the *wet* solder. All wrinkles and air bubbles were worked out by hand and the job left to cure in the sun.

In about two hours the job was deemed cured and ready for finishing. With a medium wheel, the area was

(continued)

RESTYLING WITH RESIN

continued

disc sanded down in a matter of minutes. The glass feathered out so smoothly into the surrounding metal that the bond line couldn't be felt.

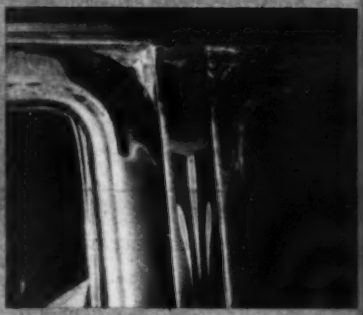
To carry out the overall contours he desired, LeRoy specified that the door corners be rounded off. The epoxy solder was a neat solution to the problem of what to use to fill the gaps after the door corners had been cut away. This was simply troweled on and contoured with a putty knife. After it had cured, it was block-sanded and touched up with a body file.

This new solder is a valuable material to customizers since it will bond permanently to metal or plastic and can be easily shaped to any form or contour. After it has hardened, it can be sawed, drilled and tapped. It provides a shortcut for glazers who don't want to be bothered with making female forms for extensive glass work. You can build up the general shape desired with laminations of glass then get the final contours with this solder. As far as we know, Taylor & Art is the only outfit that supplied epoxy-metal solder commercially.

On the taillight operation, glass laminations were used to patch up the openings left when the lights were removed from their stock location and to fair the new lights into their new spots on the fenders. Here again, epoxy-metal solder was used to smooth out indentations in the glass and to get the final shape and contours.

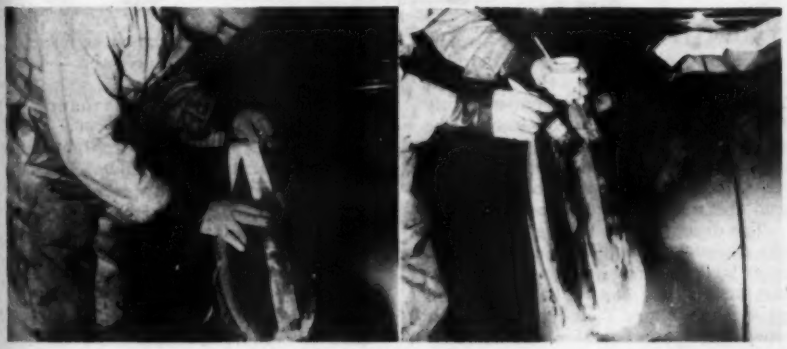
This customizing job was actually more extensive than we've indicated so far. The top was chopped 3 inches and the interior was entirely reupholstered. The powerplant was changed, being supplanted with a hopped up Dodge Red Ram. The last touch was a blue and gold opalescent paint job by Joe Bailon which makes the custom change colors like a jewel under varying lights.

So LeRoy French has a car of distinction that commands attention and admiration wherever it rolls. ●



Rounded door corners are possible with a TAP kit. First, the metal corners are trimmed away (top), then the "solder" is worked into the gaps (center). Grinding, filling and priming as though area were metal will give your car that extra touch (bottom).

Frenched fenders are achieved by ripping out the fender welt between panels, grinding the paint from along seam. Resin and fibreglas are worked into the crevice as shown above.



Strips of glass cloth are dipped in resin then laid over seam. Several layers will build up a thick surface. Finally, a last coat of resin is applied with paint brush and allowed to cure overnight.

After plastic has cured, it may be contoured with a body grinder, paint edges feathered, primed and painted. Net result is a custom with that sought-after "smooth" appearance.

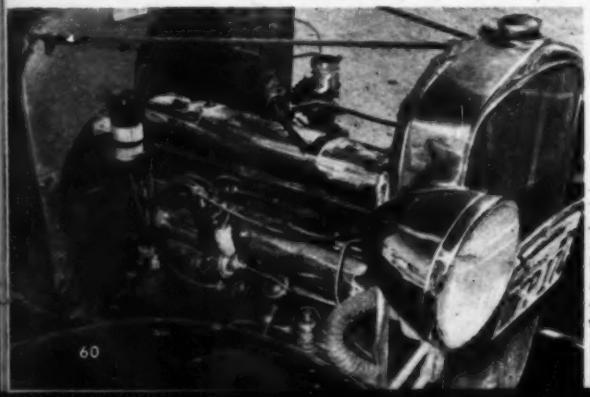
A Hellion

HOW TO LAY HANDS on a really good-looking and sweet-running car on a mail clerk's salary was the problem that plagued 21-year-old Tony Guinasso of San Mateo, Calif. The fancy rods and customs he saw at shows made his mouth water, but a lot of dollar signs stood between him and the realization of his dream.

The dream began taking shape with the discovery of a beat-down '32 Chevrolet business coupe, forlornly occupying an obscure corner of a Stockton paint shop where Tony's brother Dick worked. The speedometer was well into its second hundred thousand miles, but, most important, the wood in the body was solid. Although the engine had outlived its usefulness, and the interior looked like a rat's nest, the body metal seemed as good as new beneath the splotched blue paint – what was left of it.

The original owner was happy to part with the Chevy for $65. And brother Dick obliged by applying the sharpest paint job this side of Detroit. Both fenders and body received nine coats of lacquer, gas-sanded between coats to eliminate "orange-peel." Result is a lustrous, deep finish, with fenders black and body a flaming Pontiac red.

Replacing original wheels with smaller diameters dropped the chassis about an inch and a half. For a slight rake, 6:00 x 16 tires are used on the front and 7:60 x 16 on the rear. Whitewalls finish off the beauty treatment on the outside.



TEXT AND PHOTOS BY

The essentially stock but newly overhauled '40 GMC six provides sufficient snap to shove the 5-window up hills which bog down later cars. Fan clears radiator through use of narrower water pump, misses by a hair.

FOR HILLS

The interior was face-lifted by upholstering seat, back, panels and headlining with red and white Naugahyde, at a cost of $200—biggest single item of expense in the renovation. Only other change visible inside is a tachometer mounted on steering column.

A tour of local junkyards yielded a 1940 GMC truck engine in fine condition, and a '40 Chev truck bell housing with standard transmission. Tony cheerfully forked over $80 for the combination, and went to work.

Chrome rings were installed and valves ground as a starter. To eliminate flat spots in performance, the owner slipped in a Zenith carburetor, backing it up with a Mallory "hot plate" condenser and coil. A '39 Chevy water pump was installed so that the fan could fit between engine and radiator without radical alterations.

Horsepower of the revised mill is 125, or about double the original.

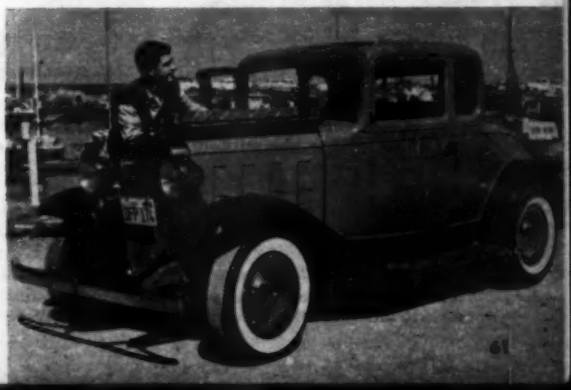
The ride was improved by welding a bar of 1½-inch channel steel across the rear of the frame and attaching airplane-type tubular shock absorbers in diagonal position.

How about results? According to Tony, "Where you really notice the performance is on hills. It'll go up nearly as fast as it'll move on the flat, and that's close to 90 mph. That's partly due to the rear end ratio of 4.55 to 1 (stock).

This reporter was convinced when Tony demonstrated his car's goat-like contempt for grades by whizzing up San Francisco's seemingly vertical Filbert street hill in second gear. Acceleration is approximately equal to a current-model six-cylinder Chevrolet. This despite the lack of streamlining. As Tony noted, "After a certain speed you're just pushing wind." Even so, on the freeway other drivers warily keep clear of the '32, apparently figuring that anything that looks so sharp must have the equivalent of nuclear energy under the hood.

Perhaps best of all is the fact that Tony realized his dream-car ambition for a total outlay of less than $500. There are undoubtedly hotter performers on the road, and sleeker-looking rigs, but it's rare that you find a satisfactory combination of the two at a price-tag a working man can afford. ●

BERT GOLDRATH



One of the many San Francisco yacht basins provides backdrop for Deuce — Chevy-style. Of interest; with the coming of 1957, '32's are now quarter century old! Present appearance, however, belies age of the Chevy.

ELAPSED TIME VS. TOP SPEED

(continued from p. 28)

So just remember that your starting gear is critical when you're after e.t. But also remember that spinning tires can hurt your usable forward thrust more than a small change in gear ratio. If you can't get away without burning with the theoretically "optimum" ratio, then you'll be farther ahead to gear up until you can. The starting gear is not vital when you're out for top speed.

DRIVING TECHNIQUE

This is pretty hard stuff to nail down on paper in so many words. It's more an art than a science. You don't learn it in a school... and you don't get good at it practicing in a parked car. Actual competition out on the strip, with another Joe hot on your tail, is the best teacher. Here are a few tips, though:

Never, never forget the vital importance of a quick jump off the line on e.t. Anything you can do to get away better, do it. That guy who's been out-jumping you by two or three car lengths... maybe you can catch him with your extra 75 horses now; but let him find an extra *10 horses* somewhere, and it could be another story. The time you lose at the start is awfully hard to make up on the last half of the course, believe me.

We've already talked about the technique of feathering throttle and clutch to get off the line without burning rubber. If you're finding it hard to master I'd advise experimenting with the "static" rpm – the speed to which you rev the engine on the starting line before engaging the clutch– before you do any fiddling with gear ratios. Sometimes a higher, or lower, speed will do wonders here. If you're burning at 2500 rpm, try 1500. Some small European Grand Prix cars use static speeds over 5000 rpm. As mentioned, getting off the line isn't vital when you're primarily after top speed. Most of the fellows with these light, high-torque dragsters that are turning over 130 mph just take it cool coming out of the chute – and don't get the throttles flat out 'till they hit top gear 300 ft. down the course.

There's much to be gained by shifting at the right rpm. Shifting at too low a speed is by far the most widespread and serious mistake of the amateur drag strip artist. You see it from coast to coast. *Don't depend on the seat of your pants to tell you when to shift.* Best results will invariably be achieved when you run up at least 10% over the true peak of the power curve in each gear–which will be over 5000 rpm on most any modified engine these days, and over 6000 on many. *Experiment* along this line. Don't be afraid to wind 'em.

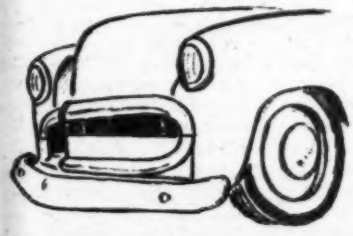
And guess that about covers it. Obviously it's going to take a very special car to cop both top eliminator and top speed trophies, too. Few have done it so far. But, what with the fantastic horsepower outputs they're getting out of these big-inch ohv V-8 nitro engines, the e.t. margin held by the light, low-torque cars is getting smaller every day. Brute horsepower must eventually triumph. In fact, as this is written the top dog on the Coast is Cal Rice's Riley Special–not with the little Merc flathead with which he won the National Championship last year, but with Doug Hartelt's big Roots-supercharged Chrysler. Low e.t. so far is 9.99 secs. with a top speed of 153.8 mph on that run. This compares with 10.3 and around 142 mph with the flathead.

We live and learn. ●

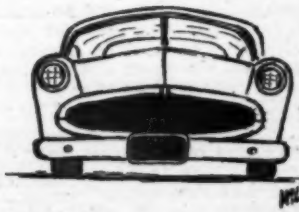
BY PETER MILLAR

After eye-balling that fine custom coverage in the November issue on the '49-'51 Fords, my ole '51 sure looked tired. So — I decided to get with it. In this instalment we're on a real simple grille kick, the next issues will find us working on various aspects of these fine autos.

Of all the grilles shown in that issue, I favored the oval treatment. I removed my park lights and grille center section and paid my junk man a visit. I latched onto another '51 bar and reversed it, that is I put it under my bar. With half the new section placed, I put...



...a template behind it and scribed a cutting line. When trimmed on this line, the metal template can be used to fill the void between new bar and fenders simply by welding it in place, leading over the welded seam, priming and painting. Note that the ends of the bars were trimmed to fit flush with each other.



As far as the parkling light holes are concerned, they can be filled with either fibreglass or metal. We won't go into glassing right now, though, as we're saving it for a later issue for special fibreglass customizing. At that time, we'll dig deeper into the subject.

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ODDS 'N ENDS

Conducted by George Burnley

Many times springs such as those found in fuel pumps, etc., offer too much compression resistance for proper accomplishment of the job for which they're designed. While it's easy to stretch a spring, shortening one can be quite a problem. Squashed, it will merely bounce back to original shape. If cut off, it will cock to one side when installed.

Solution: Compress spring in clamp or vise and heat gently and evenly with torch or by induction from arc welder or car battery. Examine frequently to avoid overheating.

• • • • •

When removing or installing engines, it's often a problem deciding where to place the sling for hoisting. If the heads are on the mill, do this: Dig up a couple of discarded spark plugs, remove the poreclain and braze on eye bolts. Screw them into the heads and, presto!

• • • • •

When drilling a hole in an intake manifold or some similar iron or steel part where chips must not drop within, such troubles may be forestalled by first magnetizing the drill by stroking it over a permanent magnet. Next, apply a coating of heavy grease to the drill flutes. Finally, when drilling, have a helper hold the suction nozzle of a vacuum cleaner next to the scene of action. Do the same when tapping the hole. At last, magnetize a small nail, tie it to a length of cord and drop it through the hole to pick up any stray particles.

• • • • •

Have you figured out a new or unusual method for easily overcoming seemingly difficult problems? If so, describe what you have done and submit it to this column. If your idea is used, you will be credited and will receive a year's subscription to your favorite magazine – R & C.

STATEMENT REQUIRED BY THE ACT OF AUGUST 24, 1912, AS AMENDED BY THE ACTS OF MARCH 3, 1933, AND JULY 2, 1946 (Title 39, United States Code, Section 233) SHOWING THE OWNERSHIP, MANAGEMENT AND CIRCULATION OF

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1. The names and addresses of the publisher, editor, and business manager are:

Publisher — R. E. Peterson, 5959 Hollywood Blvd., Los Angeles 28, Calif.

Editor — Spencer Murray, 5959 Hollywood Blvd., Los Angeles 28, Calif.

Business Manager — T. A. Johnson, 5959 Hollywood Blvd., Los Angeles 28, Calif.

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T. A. Johnson

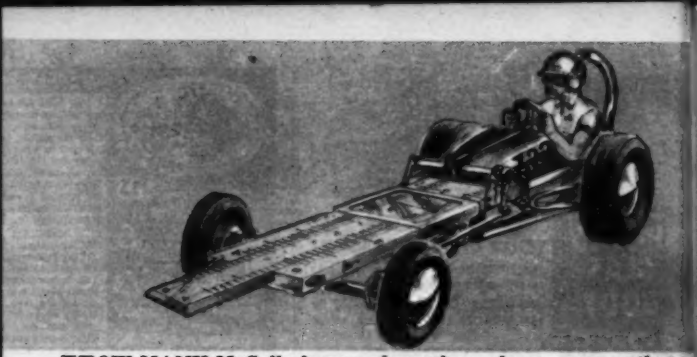
Sworn to and subscribed before me this 18th day of September, 1956. J. A. Thompson

Notary Public in and for the County of Los Angeles, State of California.

(Commission expires May 24, 1958)

backpressure

BY ROGER HUNTINGTON, SAE



HOW MANY McCulloch-supercharged cars have you seen that had really outstanding performance when compared with hopped-up *unblown* cars in their class? Not a whole lot, I'll bet.

An internal-combustion engine has to "burn" a certain amount of air for every horsepower it produces. This will be roughly ⅛th of a pound of air *per* minute per hp; in other words, 200 hp would require about 200 × ⅛ = 25 lbs./min. air flow. Now there are no two ways about this (this side of nitro, anyway!). Okay. So when we put a supercharger on our engine the thing has got to pump this ⅛th lb. of air per minute for each horse.

With a centrifugal-type supercharger the air *pumping* capacity bears no direct relationship to the *pressure* capacity. The pressure output is determined mainly by impeller tip speed—that is, it's a function of impeller diameter and rpm. On the other hand, pumping capacity depends not only on impeller diameter and speed, but on such other factors as the area of the inlet "eye", the width of the impeller blades, type of outlet duct, etc. In other words, a supercharger may pump lots of pressure, but at a small *mass flow* output.

This is the problem with the McCulloch. The thing was designed four years ago for engines that developed only 125-175 hp unblown. Its rated air flow is 23 lbs./min. With these low-power engines the McCulloch was a brilliant piece of bolt-on hop-up equipment, giving a 35-40% boost in peak hp and a big increase in medium-speed torque without the usual disadvantages of a poor idle, noise, poor low-speed flexibility, etc. Today it's a different story. Anything less than 275 hp for a "high-performance" machine is strictly old hat. This means 34 lbs./min. minimum air flow... and the McCulloch has to sweat to keep up! At very high air flow rates, in fact, it could act almost as a *restriction*.

On an engine that develops 150 hp unblown, the standard McCulloch installation should add nearly 60 hp. At 200 hp unblown the addition would be closer to 50 hp. At 250 hp unblown it might add only 30 hp; at 300 unblown it's generally good for less than 20 more horses (with much danger of overstressing the drive). How can the poor little McCulloch keep up with this brutal air flow demand?

What's the solution? None that I can see... outside of a complete re-design of the impeller, ducting, and drive—to a point where it can pump 50-60 lbs./min. at 5 lbs./sq. in. pressure with a compression efficiency of around 60% or better. Until then, don't expect the small blower jobs to be dusting everybody off.

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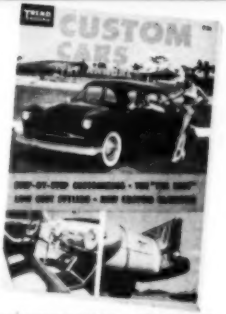

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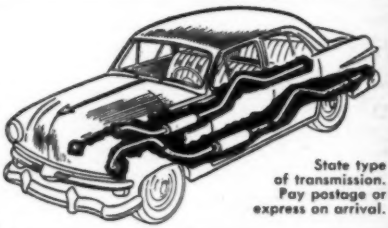

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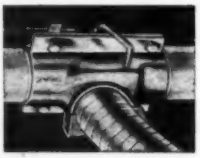

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